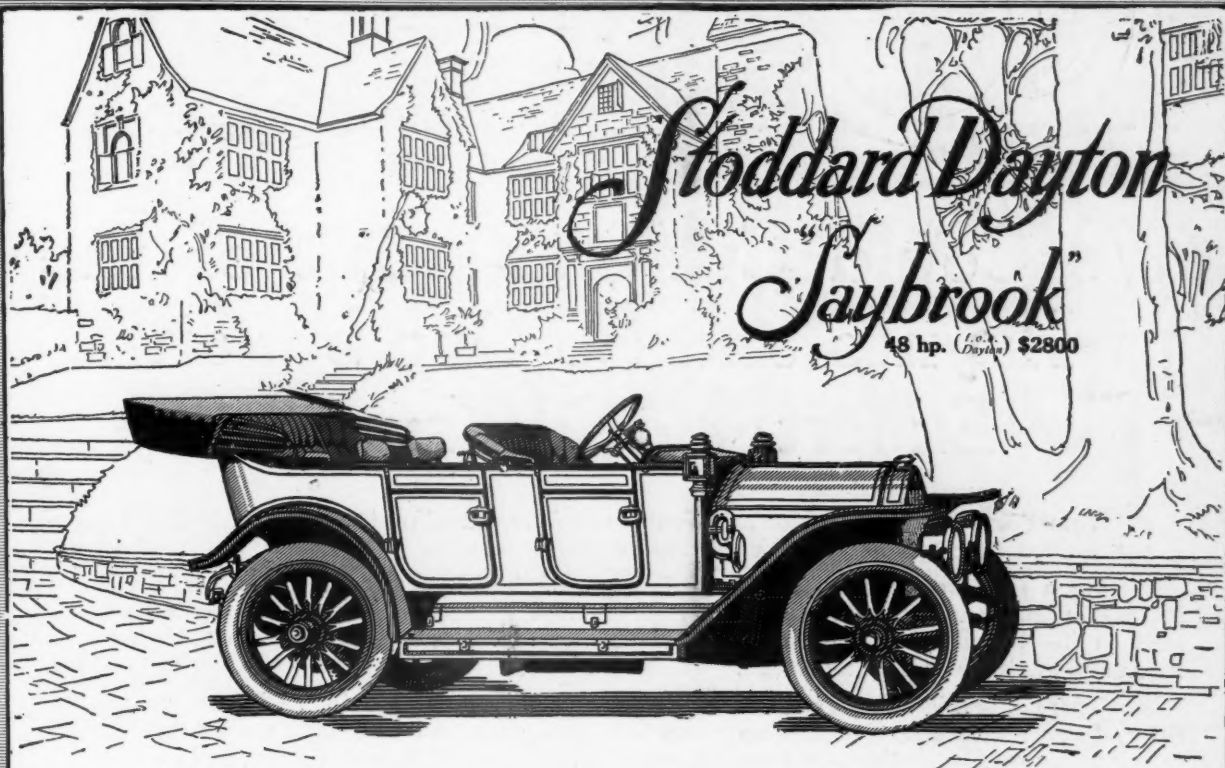


# MOTOR AGE

VOLUME XXI

CHICAGO, FEBRUARY 1, 1912

NUMBER 5



**T**HE Stoddard-Dayton "Saybrook" Touring Car was designed with a fine eye to comfort. You must be comfortable in your motor car to get the full joy of motoring.

You can move the driving seat backward or forward—it is adjustable to your length of limb.

You drive easiest when the levers and the wheel are within just the right distance from arms and feet.

In the tonneau five passengers won't crowd each other in the least. The seats are extra wide.

There are lots of other comfort features to be noted in the "Saybrook." These, for instance—

*Big 36-inch wheels—make uneven roads seem level.*  
*Springs, 2½ inches wide—three-quarter elliptic rear—well-arched and scientifically suspended.*

*Wheelbase, 122½ ins., the right length for easy riding.*  
*Deeply-cushioned upholstery, with seat backs at just the right angle. Nothing on the running-boards to interfere with easy entrance and exit.*

*Body set on rubber cushions, eliminating vibrations.*  
*Shock absorbers are part of the equipment, of course.*

A motor car to be complete must be more than a body, chassis and engine. We have carried completeness to the ultimate. A Limousine body, interchangeable with this touring car body, will be furnished (\$1550 extra) if desired. Thus you virtually have two cars, and at a price but slightly more than the price of one.

Catalog tells the whole story—ask us for one.



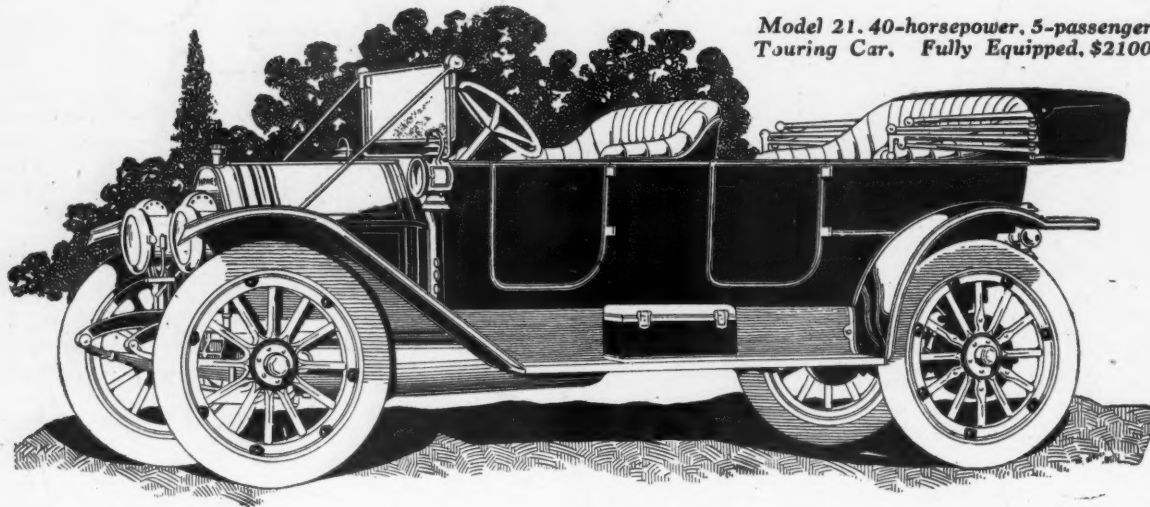
**United States Motor Company**

*Stoddard-Dayton Division*

**4 West 61st Street  
New York City**

# HAYNES

Model 21. 40-horsepower, 5-passenger  
Touring Car. Fully Equipped, \$2100



## We Could Cut \$500 Out of the Haynes and No One but an Expert Would Know It

That doesn't mean it couldn't be found out *later on*. For it would be, and "later on" is not a good time to find out things about a car.

It's a *fact*, we could cut the heart right out of the Haynes and few men could tell it by *looking* at the car. It might still be just as big and handsome. But it wouldn't have the *stuff* in it—the materials and the workmanship. It would not represent what we consider *necessary efficiency* in an automobile.

There is nothing simpler than to *cheapen* a car. Take fifty dollars off here, twenty-five there, forty somewhere else, and so on in a dozen ways and places. Easy enough to buy inferior materials, rush the workmanship, cut out the days and days of testing, and let the body go through with six or seven coats of finishing instead of *eighteen*.

But to build a car that way wouldn't be the Haynes way, and such a car wouldn't be a Haynes car.

The Haynes Five-Passenger Touring Car Model 21, fully equipped, sells for \$2100 and it's worth every dollar of the price.

The Haynes 1912 Line is worth seeing, worth studying. A wide choice of bodies on our two standard 1912 chassis, Model 21, 40 horse power,  $4\frac{1}{2} \times 5\frac{1}{2}$  inch motor, 120 inch wheel base, 36x4 inch tires; and Model Y, 50-60 horse power,  $5 \times 5\frac{1}{2}$  inch motor,  $127\frac{1}{2}$  inch wheel base, 37x5 inch tires.

### Dealer Opportunities

The increased capacity of our new factory makes possible several new Haynes agencies. Some good territory is still open for the Haynes kind of dealers. Write

**Haynes Automobile Co. Dept. N Kokomo, Ind.**



VOL. XXI, No 5

CHICAGO, FEBRUARY 1, 1912

\$3.00 PER YEAR

# MOTOR AGE



*The Chicago Show  
of 1912*

# Chicago Show a Business Proposition



MAIN AISLE OF COLISEUM LOOKING SOUTH

Annual Exhibition in Coliseum and Armory Starts off with an Extraordinarily Large Attendance of Dealers from Middle West—Makers Well Pleased



## All Parts of the Country Represented by Big Agents

CHICAGO, Jan. 29—Not taking into consideration the fact that it is by far the finest looking show ever promoted in Chicago by Samuel A. Miles, the annual exhibition of the National Association of Automobile Manufacturers, which opened in the Coliseum and First Regiment armory Saturday afternoon, gives every promise of going down into history as the greatest business show in

which the motor industry has been interested.

This prediction is based upon the attendance of today, a day which in preceding shows generally has been noted for its dullness. Beginning at an early hour this morning the dealers from all parts of this section flocked into the two big

buildings to the almost total exclusion of Chicagoans. By 1 o'clock the aisles were in the state of congestion that is usually found only on the big nights of the shows. Attendants in the stands found themselves so busy that few of them had an opportunity to stop even for lunch. As fast as one dealer was disposed of there were two to take his place and the prediction was made that in consequence of this early outpouring of the tradesmen that the present Chicago show would produce more business than any other. Not only did the dealers come themselves but they brought with them their women folk and their prospect as well.

### All Sections Represented

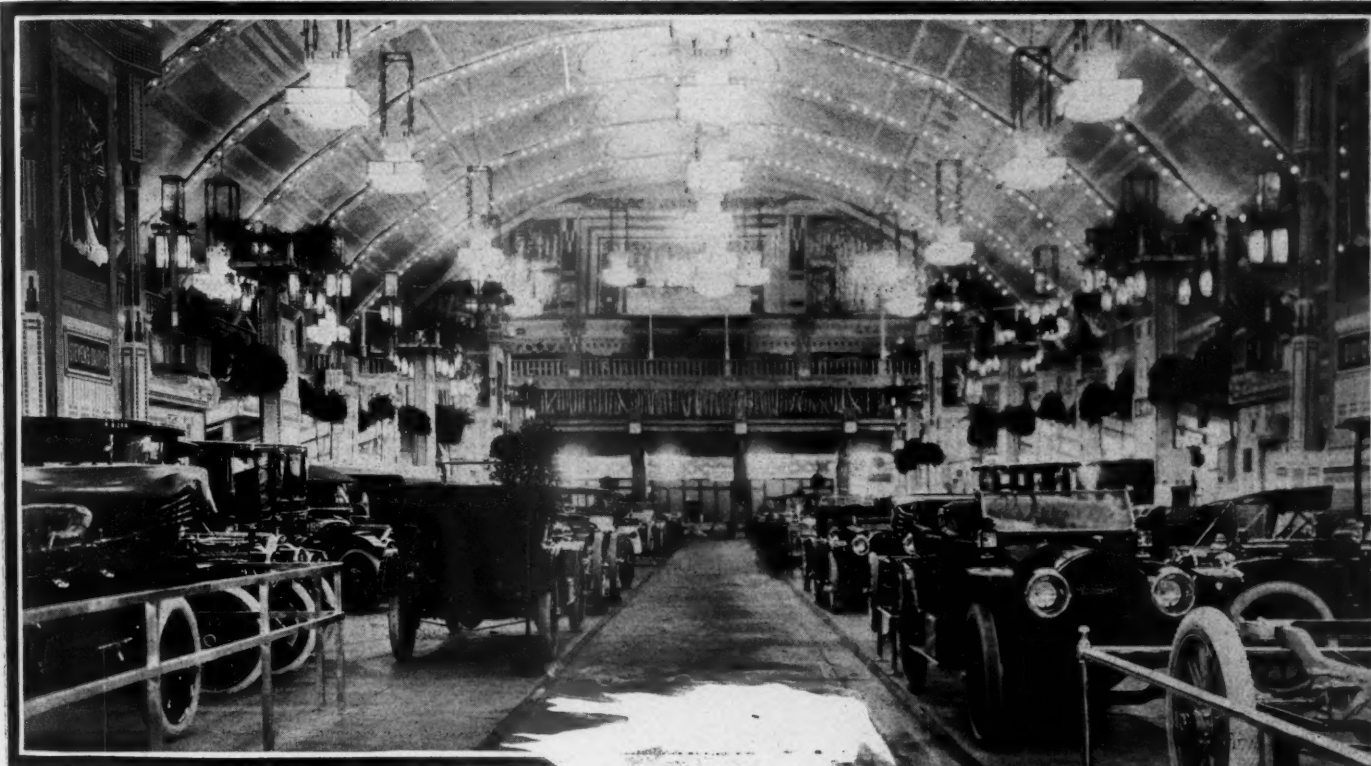
These tradesmen came from a territory bounded on the east by Buffalo and south by Louisville and on the west by Denver, although there were noticed dealers from as far west as the Pacific coast. Altogether it is the most representative gathering of the trade clan Chicago ever has witnessed. It is declared by the show management that this is only a starter and that this attendance of tradesmen will continue throughout the week.

The opening of the show Saturday afternoon was on the conventional order and not marked by any formalities. As usual the management had the show ready long before time and if there were any vacant spaces at 2 o'clock it was the fault of the exhibitors themselves and not that of the management. That the show was almost complete at the opening hour is evidenced by the fact that since that hour only thirty cars have been taken into the building, twelve going in Saturday night, sixteen Sunday and two today. The accessory people were in the same state of preparedness and therefore those who flocked to the show Saturday afternoon were well repaid for their visit.

It was a surprise to everyone, the decorations that have converted the two big buildings into bowers of beauty. The only show of the past that can at all compare with it is the one of 2 years ago when the English garden idea was used. This time precedent has been cast in the scrap pile and while it is doubtful if the decorations cost as much as in previous affairs the effect is much better than has been seen before. It is hard to classify



# Decorations Are of an Unusual Order



MAIN AISLE OF COLISEUM LOOKING NORTH

**Mural Scheme in Marked Contrast With Previous Years—Lighting Effect Is Particularly Pleasing—Armory Has Good Layout—Cars at Outside Shows**

## Display of the New Models Interests Many Thousands

the style of the decorations, but the term mosaic seems to hit it off about right. The management says it is of an architectural style, but be that as it may, the tout ensemble comes up to the hopes of the designers.

While the combination of mosaic design and mural paintings undoubtedly adds to the beauty of the affair, still it is more than likely that the effect of the lighting scheme is largely responsible for the success of the scheme. The lighting of the Coliseum is effected by means of thirty-six chandeliers, each about 4 feet deep and 5 feet square at the base and each containing eight 500-watt tungsten lamps, making a soft light that brings out fully the color effects of the car bodies on the main floor beneath. A reminiscence of the English garden show is had in the little trees which besprinkle the various spaces.

Over in the armory the idea is considerably different but not pronounced enough to make it apparent to the casual observer that the two buildings are not the same in the way of decorations. In that building staff walls, pillars and vases of Louis XIV design are combined with

flowers, foliage and lamps, while the ceiling is flat instead of being semi-circular as heretofore. A trellised design is made up of flowers and vines, while a drop curtain which is similar in character runs from the second to third balcony. The walls are paneled in light blue and mahogany, while the same lighting scheme as used in the Coliseum is found here.

### Nothing Radical Shown

Other changes are noted about the show, although none of them is of a radical nature. For instance, pneumonia alley, which connects the armory and Coliseum, has been given two entrances into each building, one of which is used only for exit purposes and the other for entrance.

In this manner the handling of the big crowds that surge between the two shows is greatly simplified and the congestion that heretofore existed between these two entrances has almost been done away with.

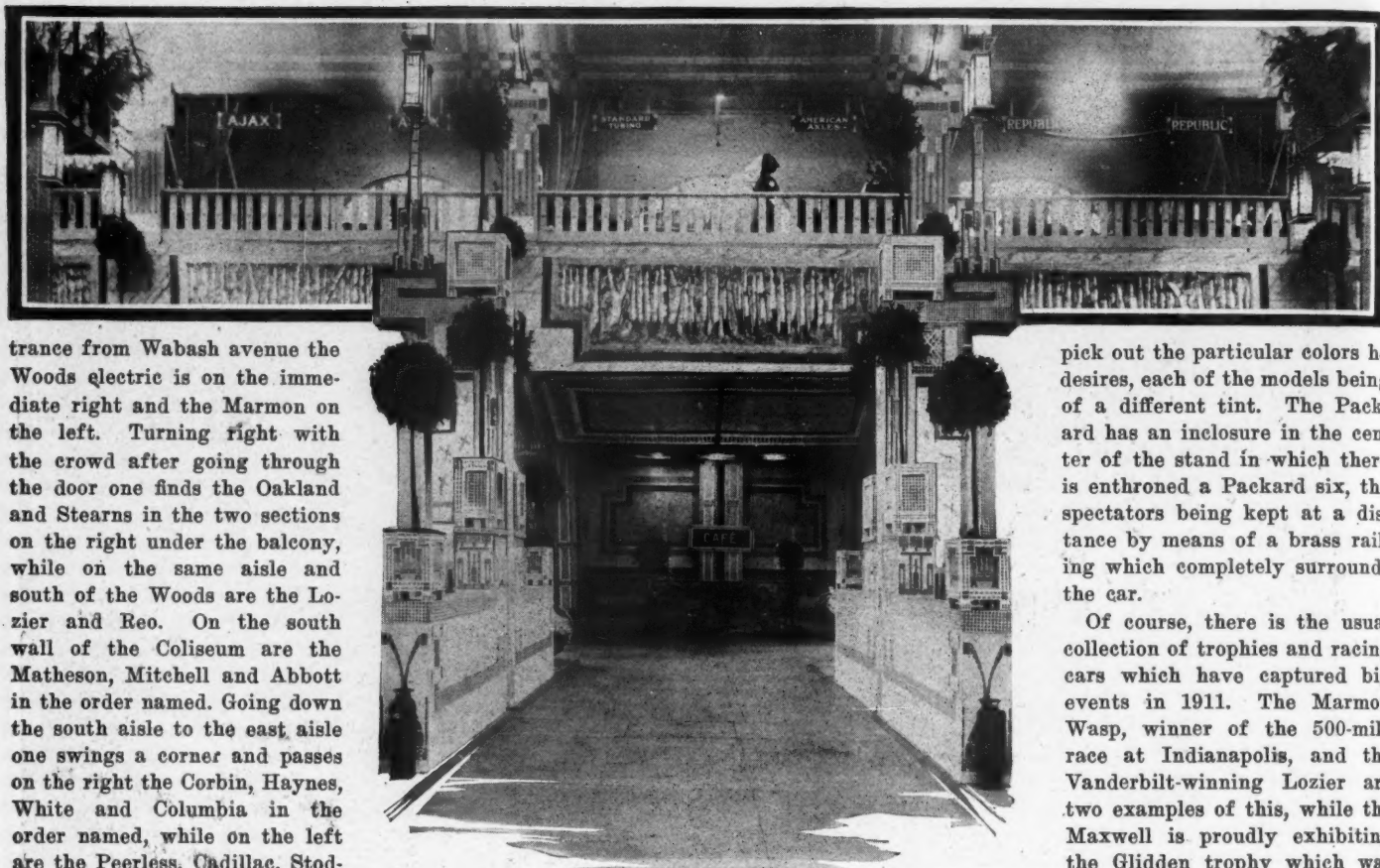
The basement of the Coliseum annex, which in previous years has generally been termed a chamber of horrors, has been greatly improved for this year's show. It is an out-of-the-way place at

best and in the earlier shows usually was the catch-all for freak ideas brought out by inventors. There has been a passing of the freaks and the basement at the present show is filled with cars of representative makes which have been forced into the downstairs section because it was impossible for their makers to secure space elsewhere. With such makes as the Borland electric, Broc electric, Berg-

doll, Colby, Crow, Davis, Cino, Stutz, King, Lion, Lexington, Michigan, Ohio, Otto, Republic, Standard electric and Westcott located there it will be seen that the basement now is well worthy of a visit.

As usual the old guard has corralled the choice spaces on the first floor of the Coliseum proper. As one goes in the en-





CENTER AISLE AND BALCONY IN THE COLISEUM

trance from Wabash avenue the Woods electric is on the immediate right and the Marmon on the left. Turning right with the crowd after going through the door one finds the Oakland and Stearns in the two sections on the right under the balcony, while on the same aisle and south of the Woods are the Lozier and Reo. On the south wall of the Coliseum are the Matheson, Mitchell and Abbott in the order named. Going down the south aisle to the east, aisle one swings a corner and passes on the right the Corbin, Haynes, White and Columbia in the order named, while on the left are the Peerless, Cadillac, Stoddard-Dayton, Pope-Hartford, Chalmers and Pierce-Arrow. This brings the spectator to the north aisle where the Knox, Pullman, Thomas and Brush are located on the right hand side. Passing along this aisle to the northern half of the west aisle one comes to the Winton, and Franklin just north of the Marmon space and Everitt and Hupmobile on the other side. The center aisle running north and south has three spaces to each section. Going south from the north aisle there are the Rambler, Buick and E-M-F on the right hand of the first section, with Packard, Stevens-Duryea and National across the way. In the next section on this aisle are the Locomobile, Hudson and Oldsmobile and the Maxwell, Premier and Overland on the left. From this it will be seen the four center spaces are occupied by the E-M-F, Locomobile, Maxwell and National. Packard, Winton, Knox and Oldsmobile are about the only ones who have kept the same spaces they had a year ago. In the Coliseum annex the Alco, Cole, Elmore, Baker, Ohio, American, Selden and Glide hold forth.

#### Cars in the Armory

The armory also is well populated, some of the concerns over there preferring it to locations in the big building itself, there being several which are exhibiting there which could have gone in the Coliseum had they so willed. It is argued that while the armory may not get the same crowds that the Coliseum does, those that do visit the place are interested in the cars and that the place is particularly attractive to out-of-town dealers. In

this building there are located the Detroit electric, Austin, Auburn, Columbus electric, Cartecar, Cutting, Cunningham, DeTamble, Fiat, Flanders, Garford, Great Western, R-C-H, Inter-State, Imperial, Jackson, Kisselkar, Krit, Marquette, Moline, Moon, McIntyre, McFarlan, Case, Paterson, Rauch & Lang, Regal, Amplex, Staver, Waverley electric and Warren-Detroit.

#### Nothing Radical Shown

In respect to mechanical features on the stands there is not much different between Chicago and New York, for those makers who exhibited in Gotham brought with them to Chicago the same things they used in the east to attract the crowds. The United States Motor Co. made a strong play on the Knight motor at the Columbia and Stoddard stands, where cut-away sections which enable the spectators to note the working principle are shown. Chalmers has the self-starter as a distinct exhibit, which is operated by means of compressed air and which seems particularly interesting to Chicagoans.

Over at the E-M-F stand there is a cut-away chassis which differs from the conventional in that it is but a half a chassis cut in two in a longitudinal vertical section which enables the onlookers to note the operation of every one of the parts of the chassis. The Locomobile has a novelty in the way of a panel on which are small models of the car itself, the use for which is to enable the purchaser to

pick out the particular colors he desires, each of the models being of a different tint. The Packard has an inclosure in the center of the stand in which there is enthroned a Packard six, the spectators being kept at a distance by means of a brass railing which completely surrounds the car.

Of course, there is the usual collection of trophies and racing cars which have captured big events in 1911. The Marmon Wasp, winner of the 500-mile race at Indianapolis, and the Vanderbilt-winning Lozier are two examples of this, while the Maxwell is proudly exhibiting the Glidden trophy which was won by its team in the run from New York to Jacksonville last fall. There are several racing drivers here also—Mulford, Hughes, Herrick and Burman, all of whom attract attention.

It is noticeable that there is a tendency on the part of car makers not to overcrowd their exhibits as has sometimes been the case in the past, a tendency which makes for comfort for both the exhibitors and spectators, in that now there is plenty of room in the big spaces on the main aisle in the Coliseum. The Packard has gone to the extreme in this regard, showing only one chassis and a six-cylinder touring car in the big space it occupies in the north end of the building. As mentioned above, the touring car is encircled by the brass railing, which sets it off to advantage.

#### No Overcrowding of Stands

The United States Motor Co. in its exhibits of Stoddard-Dayton, Columbia, Maxwell and Brush cars is not overcrowding its booths. It has adopted a principle that is unique in show annals. It is the belief of the officers of the holding corporation that some life is required to stimulate the curiosity of the spectators and because of this belief there is on each of its stands some mechanical feature which moves. For instance, the Brush has mounted a little runabout on a revolving platform, not much in itself it is true but sufficient to get the eye of the passer-by and attract a crowd. At the Columbia and Stoddard-Dayton there are the cut-away sections of the Knight motor, which seems sufficiently interesting



to bring about the desired results. At the Maxwell stand this same object is attained by means of a chassis which is operated by electricity.

#### Going After the Business

Car manufacturers are finding that it pays to carry out a fixed policy in going after the business at the shows, and this belief has led to the adoption of a new policy by at least two of the big concerns. Both White and Overland are keeping open house outside of the show where their agents may meet and discuss matters. The White uses its Michigan avenue store for this, while the Overland representatives gather at the Congress hotel every evening following the show. At these meetings there is an interchange of experiences that cannot help but be beneficial to both maker and dealer.

The Rambler people are continuing their old policy of getting as many of their agents to visit the factory at Kenosha as possible and working on this principle not a day goes by but what the Rambler leaders gather together as many of their dealers as possible, put them on the train and take them to the factory for an inspection of their big plant.

#### Outside Shows

As usual, the Chicago show is featured by many outside exhibitions of cars whose makers or representatives either have been unable to get space in the Coliseum or armory or else who believe that more business can be done in their own stores where the prospects are not being buffeted around by the crowds that are found in the Coliseum. This year, however, there are not so many of these free-lance exhibitions as heretofore, although nearly all of the stores along the row have put on gala day dress.

As has been the case in previous years, there are several exhibits in big hotels inside the loop. The S. G. V. is being shown at the Auditorium by B. C. Hamilton & Co., while at the Sherman house the Speedwell is installed in addition to the display being made in the company's branch on Michigan avenue. The Paige-Detroit and Havers six are being shown at

the LaSalle hotel. It used to be that the stores on the west side of Wabash avenue opposite the Coliseum were the haunts of the overflow, but this time the only car being shown among these buildings is the Hatfield light delivery at 1464 Wabash avenue. The Mais truck will not be in the commercial show next week, but this week and next it is being housed at 1346 Michigan avenue.

The Ford company as usual is having a show of its own at its Chicago branch, 1444 Michigan avenue, the building being tastefully decorated and there being a large attendance of out-of-town dealers. The Midland which has just opened a Chicago branch at 2009 Michigan avenue, is not at the show, but is having a display of its own. This also applies to the Marathon, Pathfinder, Pilot, Palmer-Singer and Marion. The Packard company only has one car on view in the Coliseum, but its branch is a lively spot this week, prospects discovered at the show being taken to the branch, where they view the complete line of Packards. The Abbott-

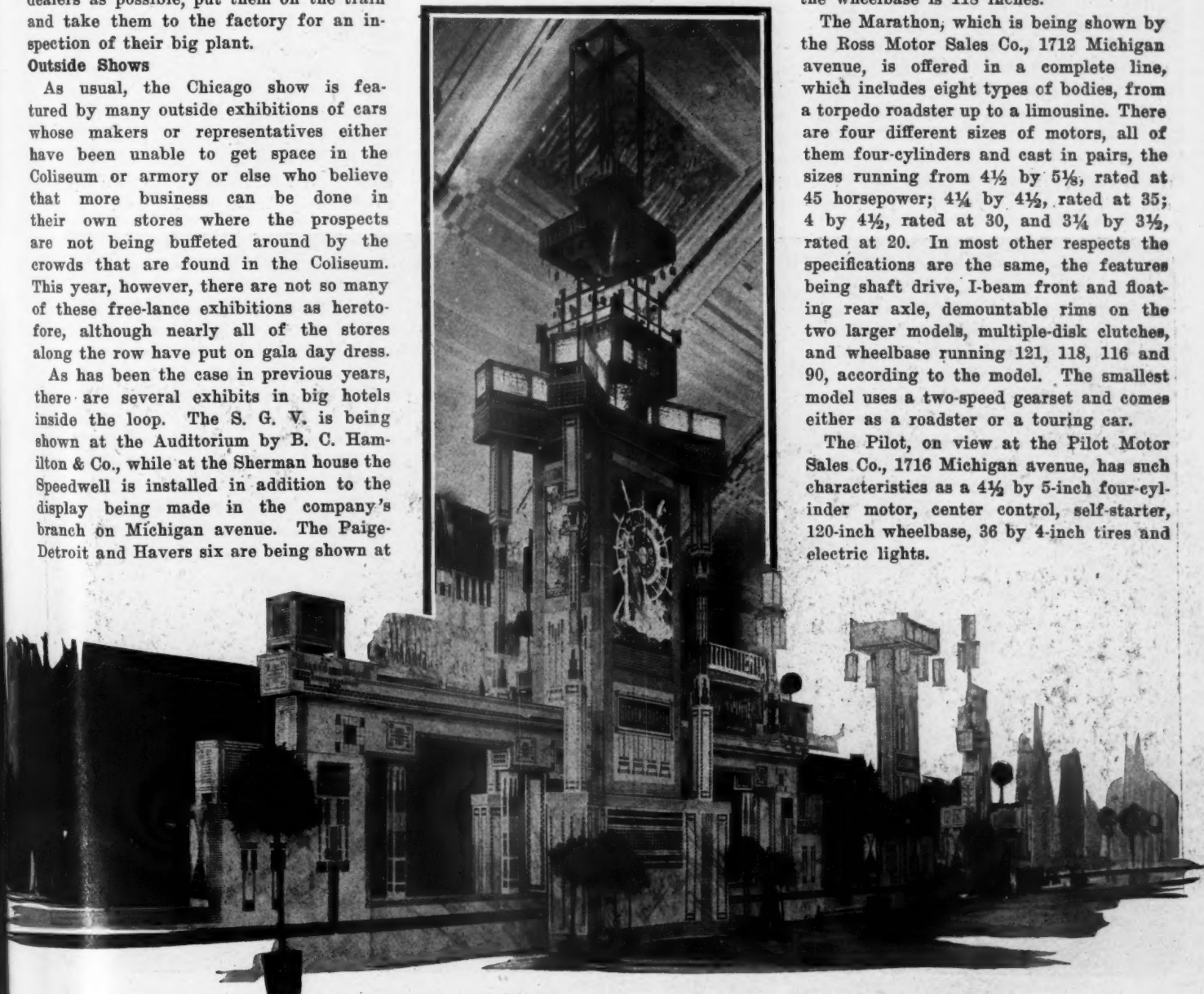
Detroit only has room for one car in its space in the Coliseum and so its main efforts are bent on attracting prospects to its Chicago agency, the Centaur Motor Co., at 1725 Michigan avenue. Marburg Brothers, who handle Mea magnetos, S. R. O. ball bearings, Marburg-Higgins springs and Lodge double-pole plugs are showing this week at the New Southern but next week will be in the armory gallery.

#### New Cars Shown

Of the cars holding shows along the row the Pathfinder at 2644 Michigan avenue is a comparatively new proposition so far as Chicago is concerned. The Pathfinder is brought out in three models, a touring car, phaeton and armored roadster. It has a four-cylinder motor of  $4\frac{1}{2}$ -inch bore and  $5\frac{1}{4}$ -inch stroke with the cylinders cast en bloc. The motor, clutch and transmission are in one unit supported by the four crankcase arms on the main frame. Other features of the car are splash lubrication, thermo-syphon cooling, high-tension dual ignition, cone clutch, I-beam front axle and floating type of rear axle, while the wheelbase is 118 inches.

The Marathon, which is being shown by the Ross Motor Sales Co., 1712 Michigan avenue, is offered in a complete line, which includes eight types of bodies, from a torpedo roadster up to a limousine. There are four different sizes of motors, all of them four-cylinders and cast in pairs, the sizes running from  $4\frac{1}{2}$  by  $5\frac{1}{8}$ , rated at 45 horsepower;  $4\frac{1}{4}$  by  $4\frac{1}{2}$ , rated at 35; 4 by  $4\frac{1}{2}$ , rated at 30, and  $3\frac{1}{4}$  by  $3\frac{1}{2}$ , rated at 20. In most other respects the specifications are the same, the features being shaft drive, I-beam front and floating rear axle, demountable rims on the two larger models, multiple-disk clutches, and wheelbase running 121, 118, 116 and 90, according to the model. The smallest model uses a two-speed gearset and comes either as a roadster or a touring car.

The Pilot, on view at the Pilot Motor Sales Co., 1716 Michigan avenue, has such characteristics as a  $4\frac{1}{2}$  by 5-inch four-cylinder motor, center control, self-starter, 120-inch wheelbase, 36 by 4-inch tires and electric lights.



THIS IS THE ARCHITECTURAL FEATURE OF MAIN AISLE STANDS IN THE COLISEUM

# One Change on N. A. A. M. Board

Annual Meeting Is Held During Chicago Exhibition and Old Officers Elected With Exception of Treasurer—W. R. Ennis Retires in Favor of H. H. Rice—  
New York Show Dates Set Week Later in 1913

CHICAGO, Jan. 31—At the annual meeting of the National Association of Automobile Manufacturers held today, all of the old officers were reelected with the exception of William R. Ennis, treasurer, who asked to be relieved of his duties. His place was filled by H. H. Rice, of the Waverley Co., of Indianapolis, Ind.

William E. Metzger, of the Metzger Motor Car Co. of Detroit, will continue as president for the coming season, and his associates are as follows: First vice-president, Benjamin Briscoe, United States Motor Co., New York; second vice-president, H. O. Smith, Premier Motor Mfg. Co., Indianapolis, Ind.; third vice-president, S. T. Davis, Jr., Locomobile Co. of America, Bridgeport, Conn.; secretary, R. D. Chapin, Hudson Motor Car Co., Detroit, Mich.; treasurer, H. H. Rice, Waverley Co., Indianapolis, Ind.; general manager, S. A. Miles, New York; assistant general manager, J. S. Marvin, New York; counsel, Charles Thaddeus Terry, New York.

The chief work of the association was the discussing of 1913 dates for New York and Chicago shows. The New York show

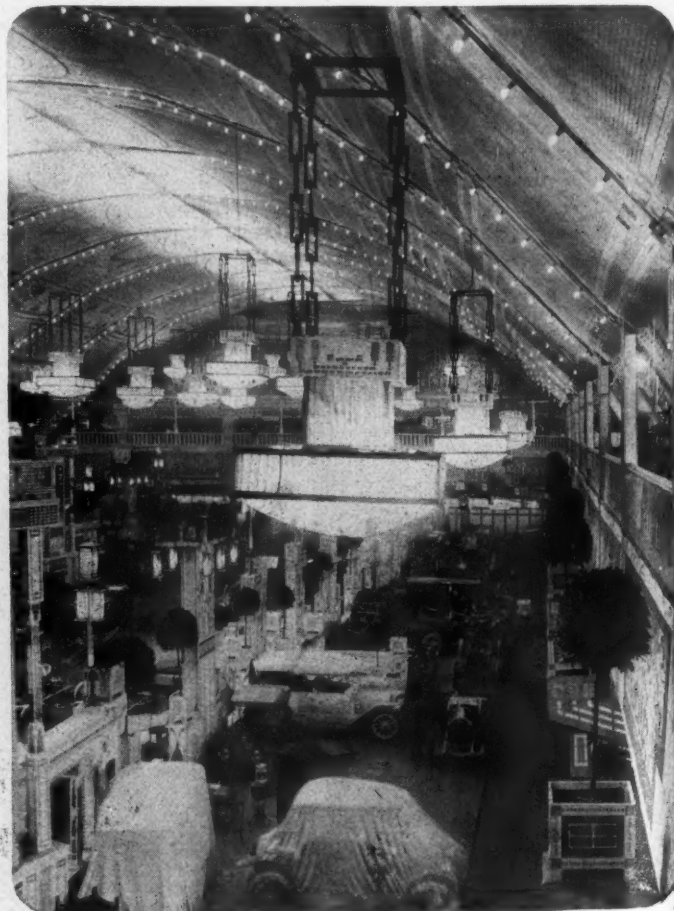
will begin Saturday evening, January 11, 1913, and will continue for 2 weeks. This is a week later than formerly, and has been done to get as far away from the new year as possible. The Chicago show date also has been moved on a week, and instead of opening the last Saturday in January will open the first Saturday night in February. Like the New York show it will be a 2-week affair, the first devoted entirely to pleasure cars and accessories, the second week to commercial cars and accessories.

After over an hour of formal and informal discussion on the New York show situation at today's meeting, it was generally considered that there will be but one show in New York next year, and in all probability the higher control of it will be by the National Association of Automobile Manufacturers. As the majority of the car manufacturers in the country are now members of the N. A. A. M., it is but natural that this body would be the controlling one in the show situation. Nothing definite is known as to where the show will take place. It is not even

known whether Madison Square garden will be torn down before that time, or if the new Grand Central arena will even be in course of construction. No matter, however, what is the building situation the National association will cope with the matter of one show and giving representation to all.

A most important factor in today's meeting was the decision to perpetuate the valuable commercial vehicle department work which the association has been conducting since the start of commercial vehicle shows. A special department for this work has been carried on and over 100,000 invitations have been sent out to business houses throughout the country, drawing their attention to the commercial shows and to the vehicles displayed. Lists of over 40,000 names have been compiled showing concerns of different financial standing.

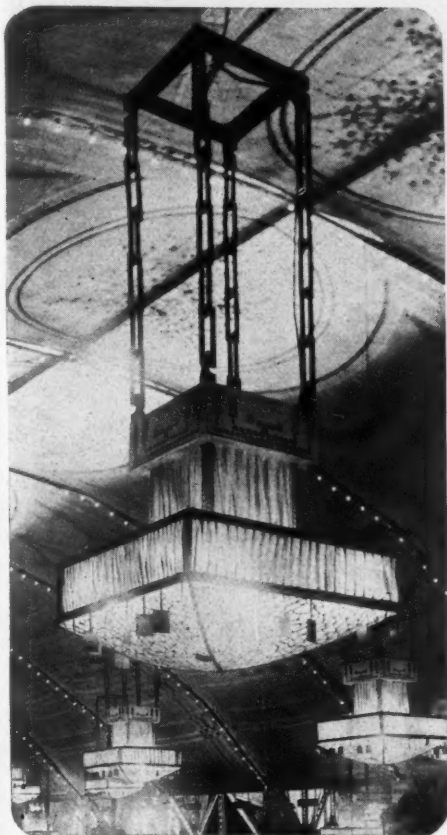
The association also is actively working on the matter of contests, and is going to use its influence to aid those contests that are for the betterment of the industry and to discourage those who are not.



WEST AND EAST ISLES IN COLISEUM, GIVING GOOD IDEA OF THE BEAUTIES OF THE SHOW



# Stoddard and Edwards Join Forces



ONE OF THE BIG ARC LAMPS

In conjunction with the commercial vehicle business, the association is bringing to the attention of its members the necessity of better loading and unloading facilities in cities and towns, and at railway depots, steamship piers and other places. The matter of discounts to agents came up for consideration. Secretary R. D. Chapin reported favorably on the work of the recent good roads convention at Washington, and while the N. A. A. M. has not actively done much in this matter, Manager Miles says a great deal of valuable indirect work has been done.

The association is working for securing of federal aid in building the Lincoln memorial, which is a national highway from Washington, D. C., to Gettysburg.

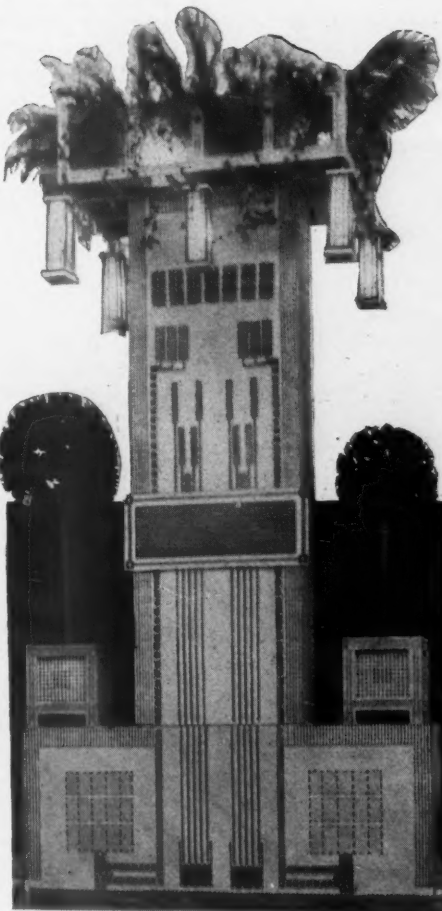
## RULES IN HUPP CASE

Detroit, Mich., Jan. 31—Special telegram—According to a decree handed down today by Judge Murphy in the Wayne county circuit court, R. C. Hupp and his brother, L. G. Hupp, are restrained from using the name Hupp in connection with the title of a manufacturing corporation, the action having been brought by the Hupp Motor Car Co. Acting in accordance with this decision, the makers of the R. C. H. will change the name of their concern from the Hupp Corporation to the R. C. H. Corporation, it was given out this evening.

## Vice President of United States Motor Co. Resigns His Position and With Holding Concern's Former Engineer Organizes Edwards Motor Co., to Use Knight Engine

CHICAGO, Jan. 31—C. G. Stoddard, vice-president of the United States Motor Co., has resigned this position and is going to organize a new company to build cars equipped with the Knight type of motor. H. J. Edwards, who resigned his position of chief engineer with the United States Motor Co. a few weeks ago, is going with Mr. Stoddard in the new company and the new machines of which two models will be produced, will come through as a product of his skill.

Mr. Stoddard's resignation as first vice-president of the United States Motor Co. was purely a business proposition. He, in company with Mr. Edwards, had an option on the fourth American license to build cars using Knight types of motors, as he considered it a golden opportunity—too good a one to be passed up.



A COLISEUM BACKGROUND



CLOCK SCHEME IN DECORATIONS

Mr. Stoddard continues as a director of the United States Motor Co. and his resignation will not affect his holdings. O. S. Goan succeeds him in the position of first vice-president and also as chairman of the operating council, which position Mr. Stoddard held.

J. W. Stoddard, father of C. G. Stoddard, and who was recently elected a member of the board of directors of the United States Motor Co., also continues as a director of the company.

Mr. Goan has for several years been associated with the National Biscuit Co., and was brought into the United States Motors about 3 months ago.

The personal withdrawal of Mr. Stoddard will not in any way affect the position of the Stoddard-Dayton company in the United States Motors. Several reports have been current that there was to be a withdrawal of the Stoddard-Dayton company. This is not true.

The new company, it is understood, will be called the Edwards Motor Car Co. This is not confirmed, but from rumors it is probable that this will be the title adopted.

The new Edwards Motor Car Co. will also bring out a line of commercial trucks of different load-carrying capacity.

Announcement of this combination was not made until tonight after it had been noised around the show. It finally was confirmed by Mr. Stoddard.



EAST AISLE COLISEUM LOOKING SOUTH, WITH COLUMBIA IN FOREGROUND

## Show Finds Favor With Sundries Men

CHICAGO, Jan. 31—Car makers are not the only exhibitors who express great satisfaction with the Coliseum show. Manufacturers of accessories and parts likewise are enthusiastic over the results of the first 3 days and the prospects for the remainder of the Chicago exhibition. It is the practically unanimous opinion in all the booths that the present show will outdistance as a business-getter any previous attempt

either in Chicago or elsewhere. This state of affairs is universally attributed to the prospects for good crops throughout the country. The blanket of snow which is lying late over the fields of the greater portion of the country augurs well for heavy crops this year and the old saying has been modernized into: more rain, more corn; more corn, more hogs; and more hogs, more motor cars.

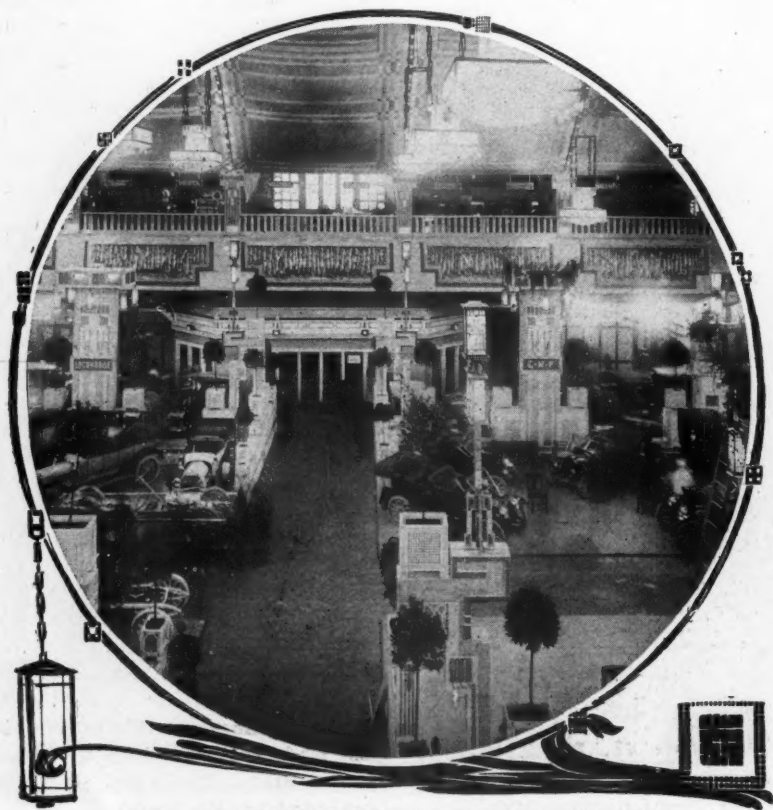
### Representatives of Accessory Concerns Express Gratification Over Results Thus Far

The dealers throughout the agricultural region recognize the signs and are flocking to the Coliseum prepared to lay in a supply of accessories that will be demanded as a direct result of a plentiful harvest.

Dealers to the number of 2,000 already have registered with the show office. They represent a territory from Pittsburgh west to the coast, a general recognition of Chicago as the western buying center of the industry. It is expected that the number of dealers will be increased many times over by those who are holding off until the latter part of the week, so that they can stay over for the commercial show.

Compared with last year's Chicago show, this is expected to be much more successful, both on the basis of actual sales and on the lining up of prospects. As against the two exhibitions at New York, accessory makers on the whole say that not only is there more business done, but the sales are made more easily. This is attributed to the difference in temperament between the people of the two sections.

Happiness reigned in the Stewart speedometer booth, where it was stated that more sales were made in the first 3 days in the Chicago show than in the whole 2 weeks of the exhibition in New York. Sales amounting to over \$5,600 were credited to one salesman for Tuesday, and a contract was closed for 500 instruments



MAIN CROSS AISLE LOOKING TOWARD ENTRANCE





AISLE IN COLISEUM ANNEX WHERE ONLY EIGHT MAKES ARE HOUSED

# Tire Men Report Booking Many Orders

Contracts Entered Into With  
New Agents in a Wide  
Zone of the Great  
Middle West

to go to one factory in one order taken.

Many of the accessory makers, particularly those who deal direct with the manufacturers, have their year's output contracted for and are exhibiting merely as a general publicity measure and in some cases are closing contracts for 1913 business. Among the parts makers, in the Gemmer booth, the Warner exhibit, the Auto Parts space and others, reports of good business with plenty of prospects are reported and many state that sales are only limited by factory capacity.

Tire makers are jubilant over the early business and contracts for new agencies are reported from practically all of them. The United States Tire Co. reports many contracts with new agents from Pittsburgh west to San Francisco, and says this is the most successful show ever held from a business standpoint in spite of the fact that most of the contracts have been closed for some time. In the Fisk booth contracts throughout the country are reported, while a representative of Lee tires is authority for the statement that between fifteen and twenty agencies have been allotted with good prospects of the total for the week reaching 150.

The magneto and carbureter manufacturers are equally well pleased. Bosch magneto salesmen report that they are kept busy caring for prospects. A Stromberg representative reports a sheaf of con-

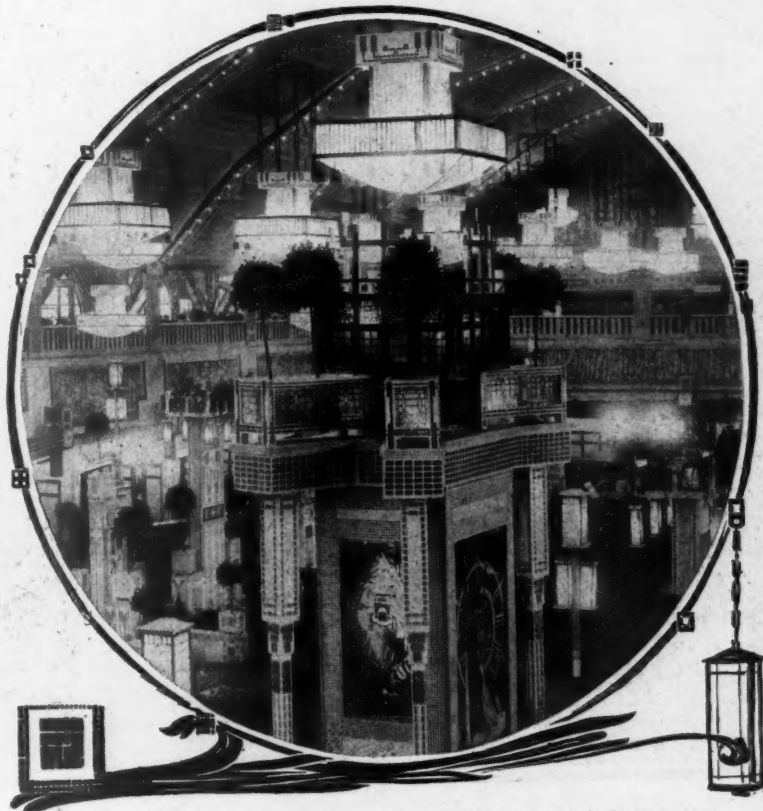
tracts with manufacturers and jobbers and says that business is better than was evidenced by the returns from the New York show. Wheeler & Schebler and Rayfield also are much gratified.

## KNIGHT DENIES A RUMOR

Chicago, Jan. 30—Charles Y. Knight, reaching here for the show, states that the announcement to the effect that the Mason car will use the Knight motor in

its four-cylinder model is news to him and that so far he has had no negotiations whatsoever with the Iowa concern relative to the adoption of the sleeve-valve motor.

So far the only concerns which have been licensed to make and use the Knight motor are Stearns, Columbia, Stoddard-Dayton and the Atlas Engine Works of Indianapolis.



FORESTRY EFFECT ON DECORATIVE PIECE

# Dealers Organizing a National Body

Meeting Held During Chicago Show and Initial Steps Taken—Many Dinners Scheduled for This Week—Hoosiers Talk of a Tent Exhibition in the City of Indianapolis—Gossip of the Coliseum and Armory

CHICAGO, Jan. 31—Another attempt to form a big dealers' organization was made yesterday when a representative lot of the retailers met at the Sherman house and organized the National Automobile Dealers' Association, officers of which have been chosen from the trade in Illinois. R. S. Winegar, of Springfield, Ill., was chosen president; Julian Broehl, Pana, Ill., vice-president; E. A. Young, of Bloomington, Ill., secretary and treasurer. The directors' names are L. F. O'Donnell, of Jacksonville, Ill.; Homer W. Wilson, of Carlinville, Ill.; D. F. Marquard, of Lincoln, Ill.; James G. Parker, of Maroa, Ill.; C. M. Jones, of Clinton, Ill.; A. H. Gain, of Roodhouse, Ill., and M. Fitchford, of Granite City, Ill. The association is organized under the laws of Illinois for the purpose of fostering goodfellowship, protecting the trade, and to encourage the holding of motor car shows and exhibitions. It is claimed that a membership of 1,200 has been secured. It is the intention to hold a banquet during the week, at which time the membership campaign will start.

Another trade affair took place this afternoon when the commercial motor vehicle section of the Chicago Automobile Trade Association gave a demonstration of the utility of the power wagon. A fleet of motor trucks which represented local car dealers started from the Metropole hotel, Twenty-fourth and Michigan, at noon, and ran through the loop district, each truck being loaded to capacity. A record was kept of the gasoline and oil consumption and it is the intention to tabulate the results in order that a comparison may be drawn between the motor and the horse-drawn vehicle, which ought to prove interesting.

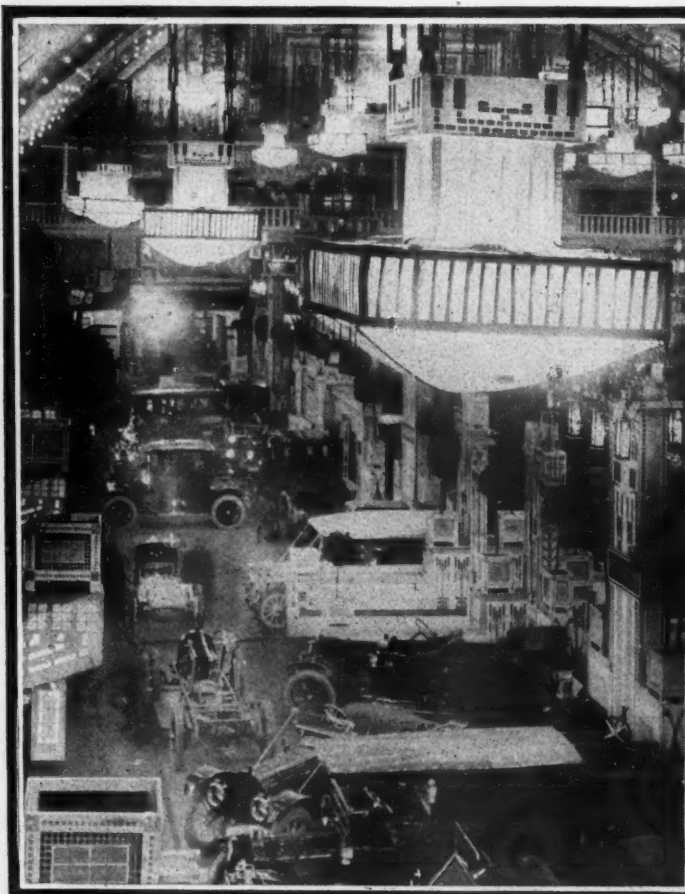
## DINNERS OF THE WEEK

Chicago, Jan. 30—The week of the pleasure car show is bristling with all sorts of dinner dates, most of them banquets arranged for dealers by car manufacturers, while the crowning event in this line will be the annual feed of the Chicago Automobile Trade Association, which will be held at the Sherman house Thursday

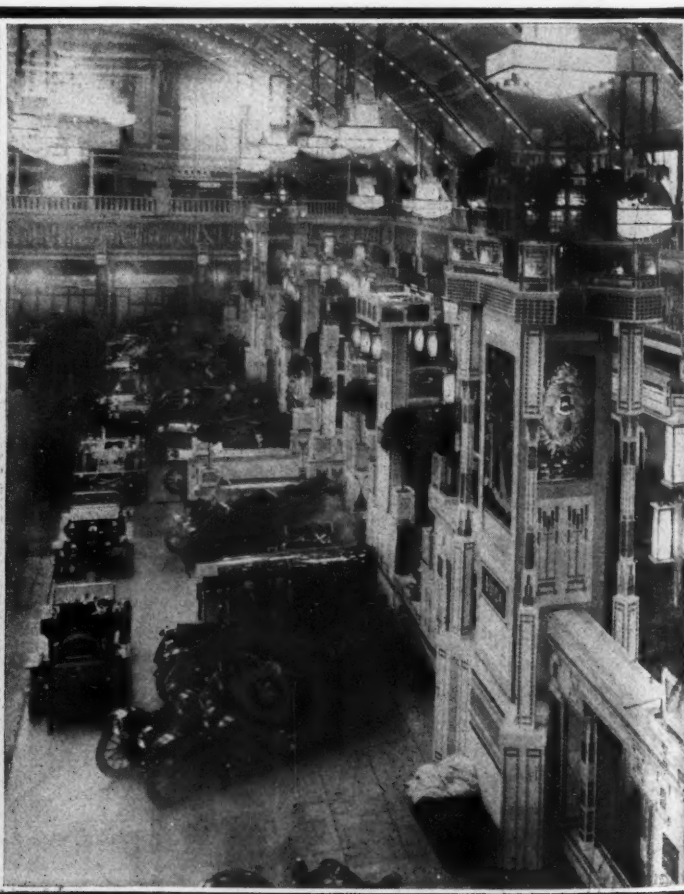
night, when S. A. Miles will act as toastmaster, while among the speakers will be Colonel Charles Clifton, E. P. Chalfant, Hugh Chalmers, W. E. Metzger, C. Y. Knight and others. Governor Deneen, of Illinois, has promised to be present, while Corporation Counsel Sexton will represent the city of Chicago. Other suppers arranged for include the Stearns dinner at 6 o'clock Wednesday night and the Halladay and Moon dinners after the show that same evening.

## HOOSIERS WANT TENT SHOW

Chicago, Jan. 29—Trade visitors from Indianapolis in attendance at the Coliseum are boosting a motor car show which will be held under the auspices of the Indianapolis Automobile Trade Association March 25 to 30. The show will be held in a tent surrounding three sides of University park and a part of the net proceeds will be contributed to a fund to be used for the erection of a coliseum. This will be the first time that an Indianapolis motor show has been held under one roof, past



COLISEUM EAST AISLE LOOKING SOUTH  
Showing Pope-Hartford, Stoddard-Dayton, Cadillac and Peerless



MIDDLE AISLE, COLISEUM, LOOKING SOUTH  
Showing Buick, E-M-F, Locomobile, Hudson and Oldsmobile stands





SOUTH AISLE IN ARMORY, WHERE PHOTOGRAPHING IS NO EASY TASK

shows consisting in each dealer and manufacturer exhibiting in his own establishment. There is no building in the city large enough for a motor show under one roof, hence the present plan for a tent show. Mayor Shank, the board of public works and the board of public safety of Indianapolis have given permission to erect the tent in Meridian, New York and Vermont street, around three sides of University park, close to the heart of the city. The tent will be C-shaped and if stretched out would be three squares long, giving more floor space than may be had in the Chicago coliseum. The initial expense will be about \$5,000 and a general admission fee of 50 cents will be charged. The tent will be elaborately decorated and illuminated with electric lights. Eighty makes of cars, together with accessories, tires, etc., will be shown.

#### INTRODUCING SILENT-CHAIN GEARBOX

Chicago, Jan. 28—One of the English visitors at the show is A. S. Hill, who is in America in the interest of the Coventry Chain Co., which concern brought out the silent chain when first used in conjunction with Knight motors for driving the eccentric shaft. This company is exhibiting for the first time in America a silent-chain gearbox, the chains taking the place of meshing gears. This construction has been introduced abroad in order to reduce noise in London and other cities. The American chain manufacturing companies have been quick to get in the field with silent chains for driving camshafts, magnet shafts and others. Such concerns as Link-Belt, Whitney, Diamond and others exhibit many sizes of these chains of every variety of drive in conjunction with motor cars.

## End of the Reo Rumors

### John N. Willys Issues Statement Declaring Overland Deal for Lansing Plant Is Off—Halladay Court Troubles at an End

CHICAGO, Jan. 31—The rumors which were constantly afloat regarding the purchase of the Reo Motor Car Co., Lansing, Mich., by the Willys-Overland Co., Toledo, O., were set at rest today by a statement by John North Willys in which he stated that negotiations were entirely off. The matter of purchase of the Reo plant by the Overland interests had progressed little further than some conferences between legal representatives of the two concerns, and had not reached the stage of price or other details. In the final conferences between the two parties at Detroit all negotiations were called off, it was stated tonight.

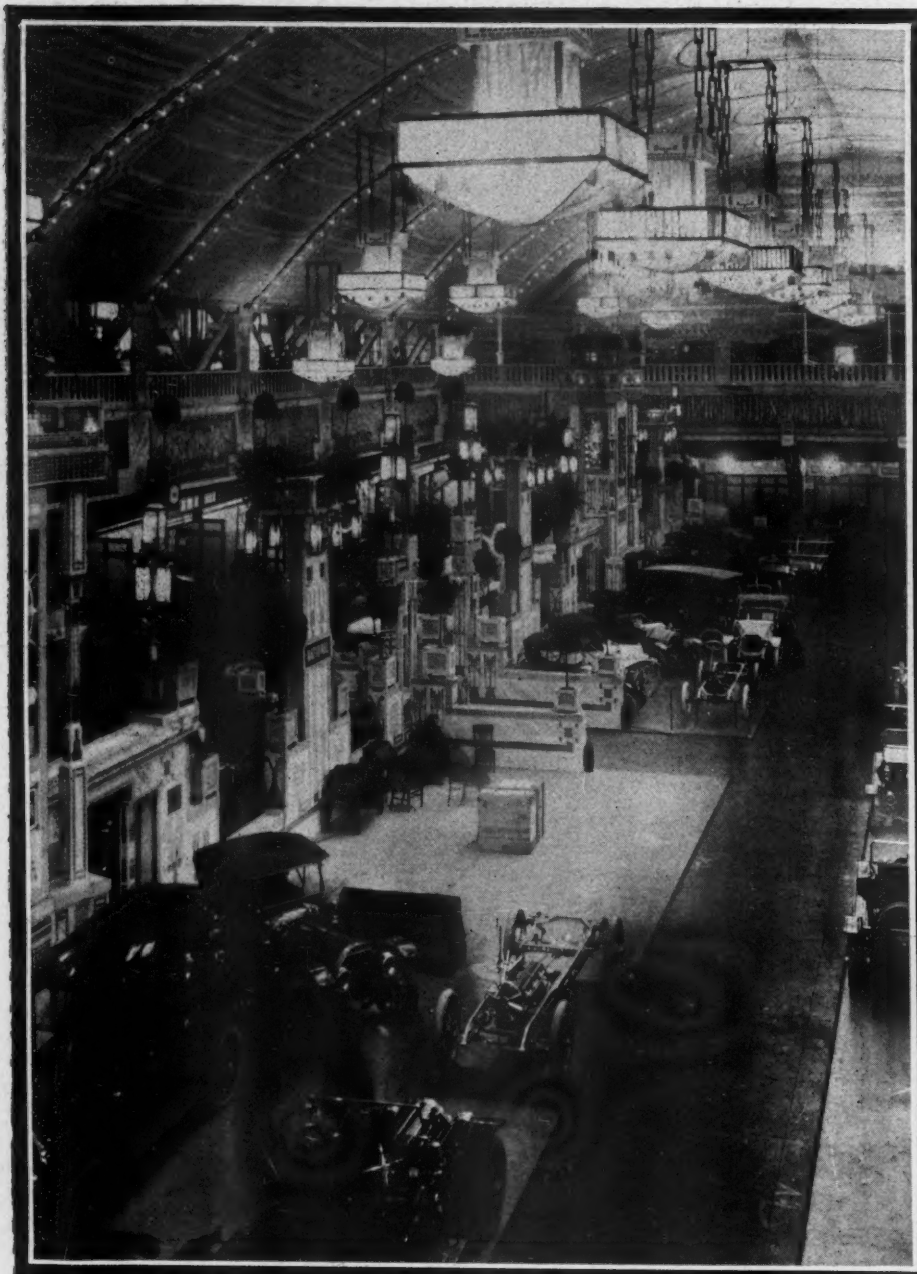
#### HALLADAY OUT OF COURT

Chicago, Jan. 31—By action of Judge Landis, the Streater Motor Car Co., of Streater, Ill., has been freed from the legal entanglements which have surrounded it since the bankruptcy proceedings last fall. It will be remembered that at that time John C. Barlow and Paul R. Chubbuck, of the Streater company, offered to convey to a trustee a large amount of real estate and other property against which they proposed to issue bonds secured by a mortgage on the property so conveyed, and give these bonds at 100 cents on the dollar to the Halladay creditors in payment of their claims. Before Judge Landis it was pointed out that under the amendment of 1910 to the bankruptcy act that a court

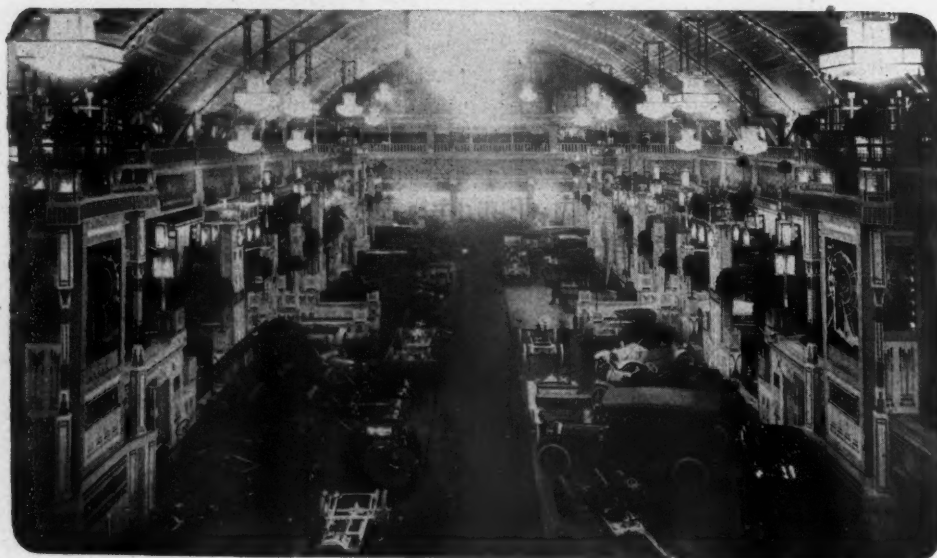
is given jurisdiction without an adjudication of bankruptcy to compel a minority of creditors to accept a proposition or composition acceptable to the majority. That was what originally took the case into court. Only two exceptions were filed and now these have been withdrawn, so action of Judge Landis this week was a mere matter of form, the Halladay people being free to go ahead under the plan proposed last fall.

#### KNIGHT TELLS OF PROGRESS

Chicago, Jan. 29—Charles Y. Knight, inventor of the Knight motor which is being exhibited by the Stearns, Stoddard-Dayton and Columbia people, is one of the daily visitors at the show, and is reminiscent of 6 years ago when he exhibited his sleeve-valve motor for the first time at a Chicago exhibition. Since then the motor has made wondrous strides. The Panhard company in France built 1,000 of this type last year and will produce 1,600 during the present year. Eighty per cent of its product is of this design. The Mercedes company, in Germany, is turning out 60 per cent of its product as Knight types. Its first motors were brought out a year ago, at which time a run of 500 was started. This company is at present preparing to bring out two new models. The Minerva company in Belgium builds this type exclusively, building 1,200 in 1911, and having plans for over 2,000 this year. The Daimler company in England built over 2,200 in 1911, and has vastly increased plans for the present season. In Austria Laurin & Klement have the rights for building this motor for Austria-Hungary and Russia. These rights have but recently been acquired. In Switzerland the Sigma company has the Knight rights to build for



LOOKING SOUTH FROM THE BALCONY ON THE MAIN AISLE  
Showing Stevens-Duryea, National, Maxwell, Premier and Overland



LOOKING NORTH, MAIN AISLE COLISEUM  
On the right Premier, Maxwell, National, Stevens-Duryea and Packard. On the left Hudson

the Swiss market only. In Italy the rights are held by the Daimler company of England, which has a small Italian factory. It is expected that soon arrangements will be made with two large Italian factories for manufacturing it on a royalty basis. In England, in addition to the Daimler company, are one or two other concerns using the Knight motor which is built for them by the Daimler company.

#### FALCAR REORGANIZATION

Chicago, Jan. 30—The manufacture of the Falcar will be continued, it was announced today at the show, the Fal Auto Co. having been incorporated as a successor to the old Fal Motor Co., which went into the receiver's hands last summer. The moving spirit in the new enterprise is Charles J. Marhoefer, brother of Edward H. Marhoefer, who was president of the Fal Motor Co. prior to its failure. Charles J. Marhoefer is president of the Fal Auto Co., and associated with him are F. C. Harbour as secretary and W. B. Paulson as manager. It is the intention to increase the capital stock from \$2,500 to \$20,000 and to manufacture about 200 Falcars for the season of 1912. The cars will be made in the factory at Princeton and Root streets, which was occupied by the Fal Motor Co. before it got into its legal entanglement. In this connection it might be stated that the Falcar plant for which Coey-Mitchell is negotiating is not the one at Princeton and Root streets, but is located at May and Lake streets, the original location of the Fal Motor Co.

#### SUIT IS THREATENED

Chicago, Jan. 30—Patent suits probably will be filed within the next week by the Gray-Hawley Co. against one of the large manufacturers of motor car specialties. The litigation will be based upon alleged infringements of patent rights owned by the plaintiff and upon the alleged use of the Gray-Hawley designs in catalog illustrations and text matter. At least four different articles are claimed by the Gray-Hawley people to be direct infringements. These include a muffler, a muffler cut-out, an exhaust horn and cut-out pedals.

#### TRAINING U. S. SALESMEN

Chicago, Jan. 28—Alfred Reeves, general sales manager and advertising manager of the United States Motors Co., is a firm believer in training salesmen for their work at the different shows. Before the New York show circuit opened every salesman, who was to work in the exhibit spaces of the various companies in this holdings corporation, was given a thorough training in all the talking points of the cars. He was put through the role of selling the different cars to some members of the firm and if he could not succeed in doing this he was not considered eligible for the salesmanship force during the show. The necessity of such schooling has been apparent for many years past at the different shows. Scores of companies ex-



hibiting have not looked upon the shows as retail and agency propositions and have not fortified themselves with good forces of salesmen. The examples set this year by Mr. Reeves and others are good ones to follow by all concerns who are a little weak-kneed and feel that shows have outlived their usefulness. The value of a show to any exhibiting concern depends upon the business spirit with which that concern goes to the show.

#### GOSSIP HEARD AT SHOW

Chicago, Ill., Jan. 30—It is questionable if at any other show more changes in different companies take place than the Coliseum exhibition here. It was announced here today that T. H. Mars, formerly with the Dart Mfg. Co., Waterloo, Ia., has been appointed sales manager of the Model Gas Engine Works, Peru, Ind.

The Kellogg Mfg. Co., Rochester, N. Y., has opened a Chicago branch at 1430 Michigan avenue, under the management of Edward B. Reeser.

John Clark, formerly of the Clark Motor Car Co., Shelbyville, Ind., and who has recently withdrawn from this organization, has recently formed the Shelby Motor Car Co., and is going to produce a four-cylinder car. No announcement has as yet been made of the personnel of the company, capitalization, etc.

J. L. Davidson, Indianapolis, Ind., formerly of the American Motor Car Co., and later connected with the Mais truck people, is bringing out a new car. A company will be formed but no announcements have been made regarding its personnel or location.

J. C. Styles, manager of the Indianapolis, Ind., branch of the Warner Instrument Co., has taken the management of the new branch opened at 3408 Lindell boulevard by this company in St. Louis, Mo., and has taken up his headquarters in that city.

The Pullman company has given its Chicago agency to the Owen H. Fay Co. J. V. Schenck will be the manager. At present it is not known exactly what location will be taken.

The Bird-Sykes Co., Chicago distributor of the Corbin and Matheson cars, has added the Inter-State to its line for the coming season.

Efforts are being made to reorganize the Economy Motor Car Co., of Joliet, Ill., an offer of \$16,500 for the plant and equipment having been made by William R. Everrt, former president. The concern now is in the courts. It made electric vehicles.

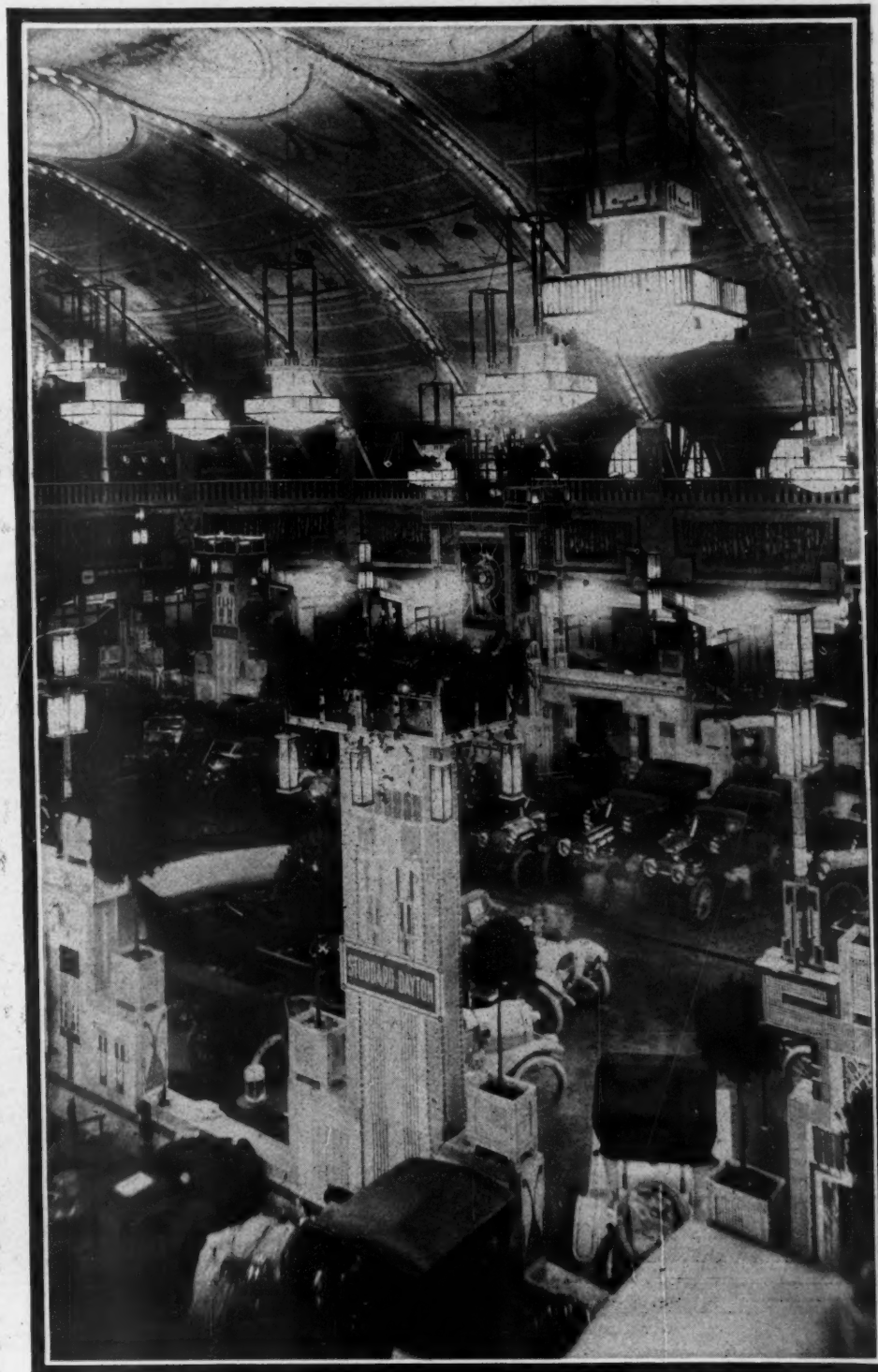
F. L. Thomas, formerly branch manager of the Chicago Franklin branch, has been appointed sales manager for Illinois, Iowa and Michigan, according to an announcement made at the show.

J. F. Singleton has resigned as Firestone tire advertising manager and has identified himself with Taylor-Critchfield, where he will continue to handle Firestone advertising.



LOOKING EAST ALONG MAIN AISLE

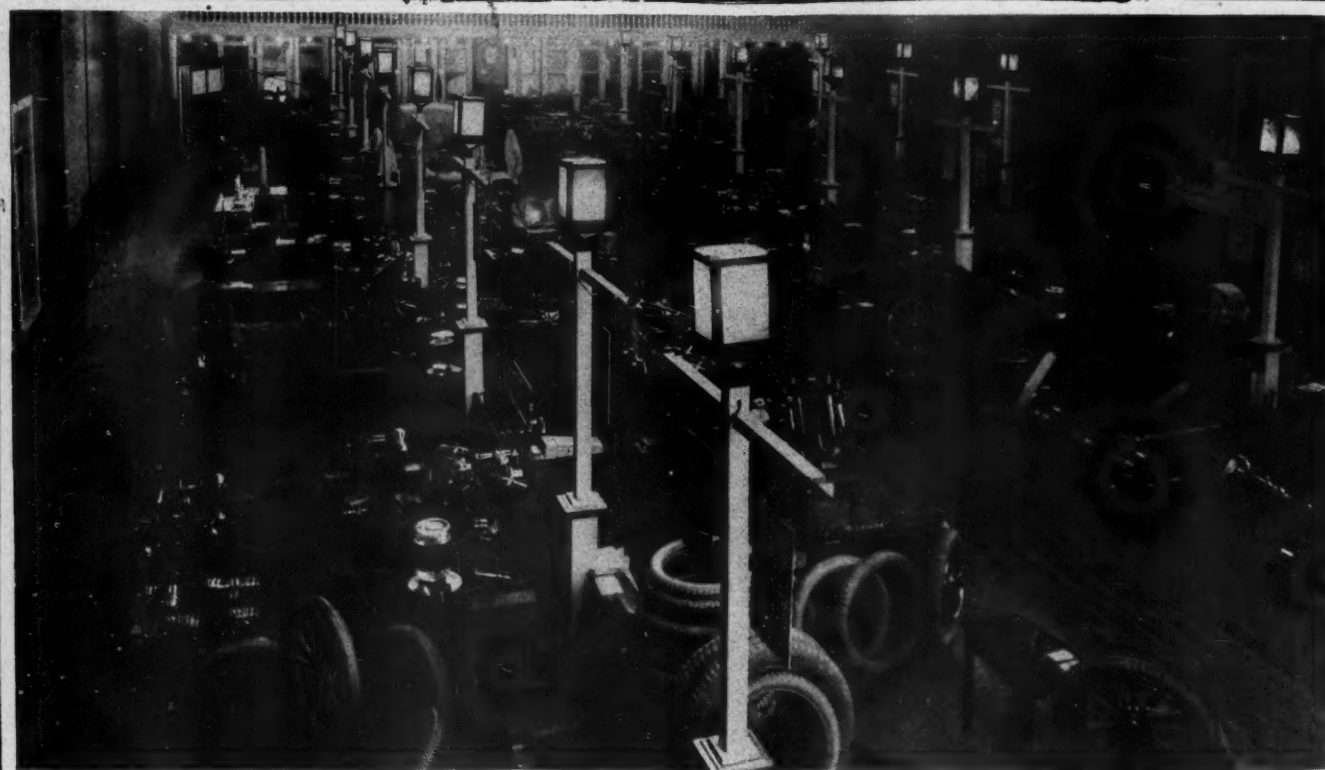
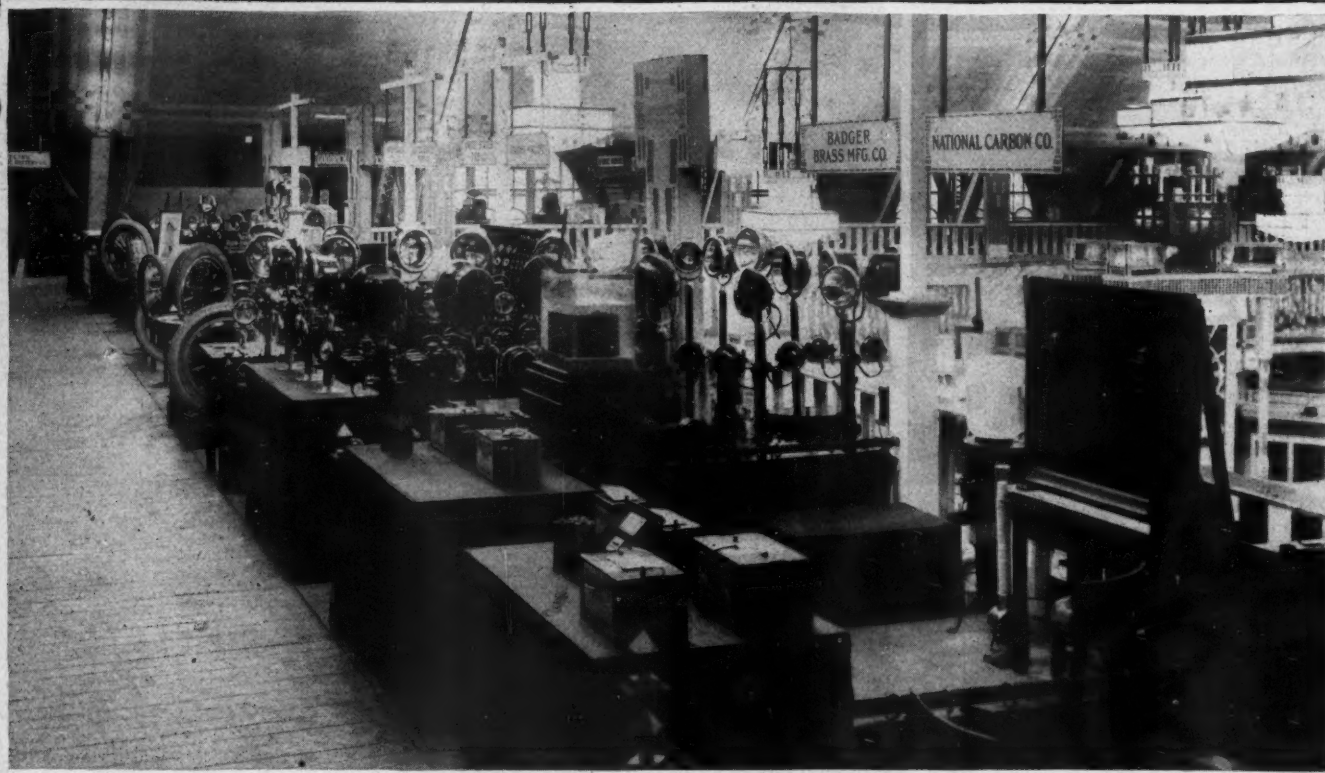
Buick, E-M-F, Locomobile, Hudson and Oldsmobile on right, and Stevens-Duryea, National, left



LOOKING DOWN FROM BALCONY

Showing Stoddard-Dayton in foreground, Locomobile, Hudson and Oldsmobile in background

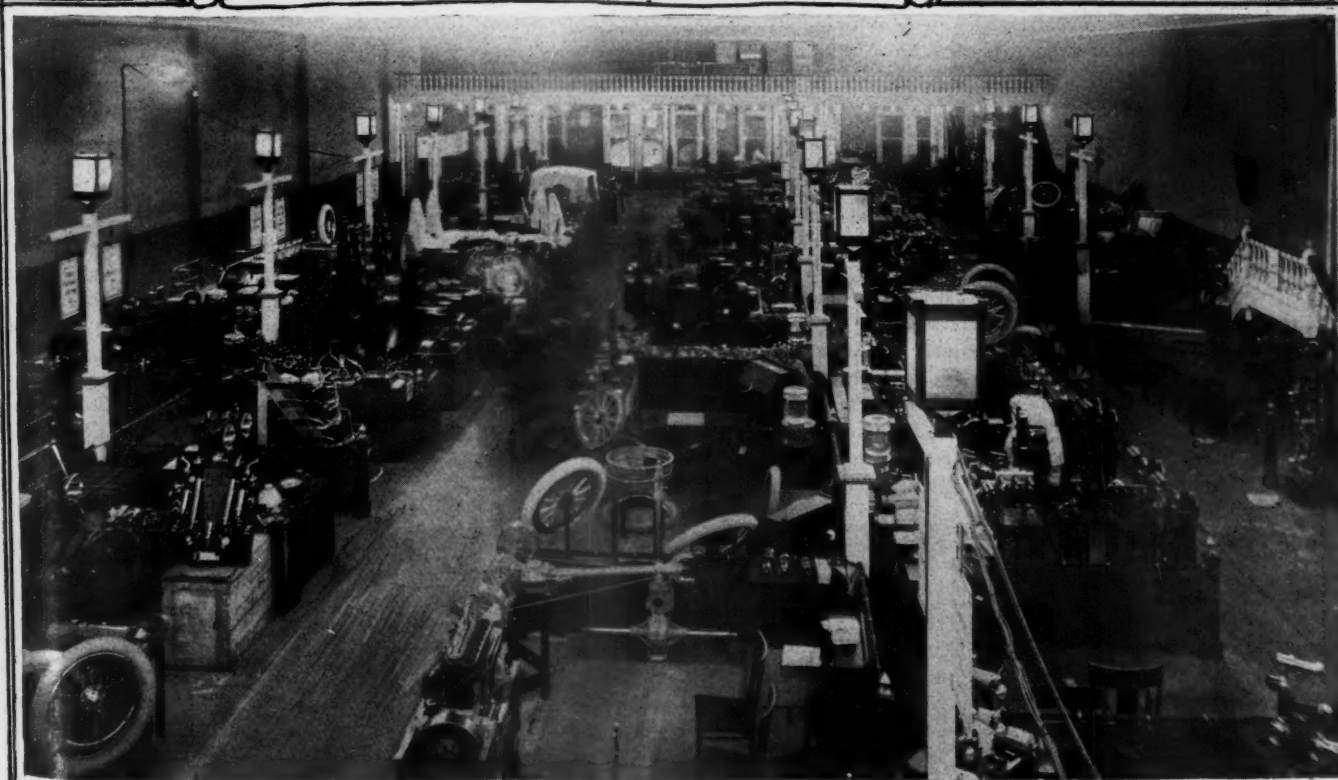
# Accessory Exhibit in Chicago Show



Accessories at the Chicago show are displayed in the Coliseum gallery, the second floor of the annex and the gallery of the Armory. The top illustration shows the south aisle in the gallery and the lower one a scene on the accessory floor of the annex



# Views in the Coliseum and the Annex



On this page are presented views of the accessory display in the Chicago show. In the top illustration is shown the north aisle in Coliseum gallery looking west. In the lower illustration is a view of the second floor of the annex looking west

NEW YORK OFFICE  
239 West 39th Street

# MOTOR AGE

Published Weekly by  
**THE CLASS JOURNAL COMPANY**  
910 SOUTH MICHIGAN AVENUE CHICAGO

Entered as Second-Class Matter September 19 1892, at the Postoffice, at Chicago, Illinois, under Act of March 3, 1879

SUBSCRIPTION RATES  
United States and Mexico  
\$3.00 per Year  
Other Countries including  
Canada \$5.00

Opposite I.C.C. 149  
Pennsylvania Railroad Station.

## Automobiles Replace Horses

### MADISON TRANSFER CO.

40 first-class horses and mares, weight 1,100 to 1,400 lbs. matched teams, some dapple grays, bays and blacks, about 20 horses and mares suitable for farmers, truckmen, coachmen, ice men and all other purposes; will be sold 30 days' trial, horses range from \$75 upward; they are in first-class condition, from 6 to 9 years old, and must be sold this week. Call to-day. 281 East 22d St. Tel. 5868 Gramercy.

TRUCKS all styles, to carry from 3,000 to 10 tons; business wagons.

## THE UNITED TRANSFER

### 1062 MYRTLE AVE.

NEAR BROADWAY, BROOKLYN.

### Is Replacing with Motor Trucks,

### 145—Horses and Mares—145

These horses weigh from 1,000 to 1,600 lbs., ranging from 6 to 9 years in age; price from \$50 up; matched pairs; were all bought green within last two years; every horse or mare will be sold with a trial of 30 days; if not as represented can be returned in trial time; will also sell trucks, wagons, harness used in the above mentioned. Call to-day. BRANCH STABLE, 1062 Myrtle ave., 1 block from Broadway, Brooklyn.

## Signs of the Times

THE three advertisements on this page suggest one of the big problems in connection with the motor truck industry, namely, that of getting rid of the present horse equipment before installing a motor outfit. Where a company has several hundred horses and a great many horse wagons it is a serious problem. Few concerns would accept the alternative of selling the horses at a sacrifice and disposing of the horse vehicles and the stables and barns for housing both at a sacrifice. Many concerns have wrestled with this problem for the last 2 years and the final solution is not yet at hand.

A FAVORITE attempted solution of this problem is the installation by sections of the motor outfit. As these advertisements indicate a certain number of the horses are disposed of at a time and the complete installation of an outfit extended over a period of 3 or 4 years. This is a very satisfactory method to follow in that it gives the company a perfect chance of organizing very carefully its motor equipment and consolidating all departments in a business way. In one or two experimental cases where a concern has changed entirely from horse transportation to motor transportation serious troubles have been experienced. There generally has been an army of green motor drivers, drivers not familiar with the mechanism of the trucks, drivers not acquainted with the methods of operation and drivers who do not realize that loss of time with a truck is much more serious than loss of time with a one or two-horse vehicle. But this is only one of the many obstacles that a complete change of installation has to deal with. There are a score of others. When breakdowns occur the repair departments are not in a well-organized condition; at periods of congestion the garage departments become confused and the work hampered.

BIG concerns are finding it most advisable to retire their horse equipment at a time when the usefulness of the horse is on the wane. Retiring the horse system at such times does not entail much loss. The depreciation in horses is very rapid, and the 2 or 3 years of experimentation with a part equipment of motor vehicles is one of the best experiences for the company interested.

THE disposal of the present horse equipment is more and more becoming a factor of interest to the truck dealer. The days are now over when a concern is content to purchase a single truck when its complete buying possibilities will require upwards of a hundred vehicles. The change in times is also shown by the improvement in trucks so that now it is not so difficult a matter for the business man to secure what he considers a satisfactory vehicle. The problems that he sees uppermost are: what is the best system of installation, what is the best type of vehicle for his business, what changes he will make in his shipping facilities to care for the faster systems of transportation, what changes he can make in his loading and unloading arrangements, what changes he can make at his transfer depots, and many others. To the business house these are important considerations. To the dealer they are particularly important and information along these lines will be a stronger weapon in the selling of trucks than books full of technical facts!

With business men it is an accepted fact that they must have trucks. One business man must buy because his rival has trucks. Because of this the work of the salesman is changing. It is not so much a case of explaining what a truck can do as compared with the horse team as showing the individual buyer the particular needs of his installation. Time is the greatest factor in motor vehicle transportation. The buyer must realize this. If he does not he will not be a good advertisement for the truck business.

NEAR 1TH AVE.

## MOTOR POWER REPLACING

### 80 HORSES 80 HORSES

THEY MUST BE SOLD ON PREMISES OF

### Murray Hill Transfer Stables.

Fat, Chunky Horses, Mares,  
\$60 Upwards.

342 West 38th St.,  
BET. 8TH AND 9TH AVES.  
TELEPHONE 1438 MURRAY HILL.  
10 DAYS' TRIAL.





GENERAL VIEW OF CHICAGO SHOW IN THE COLISEUM

## Coming Motoring Events—The Shows

January 27-February 10—Annual show, Pittsburgh, Pa.; Automobile Show Dealers' Association of Pittsburgh. Pleasure cars, January 27-February 3; commercials, February 3-10.  
January 29-February 3—Second annual show, Scranton, Pa.

### FEBRUARY

February 1-7—Tentative dates for show at Washington, D. C.  
February 3-9—Show at Albany, N. Y.  
February 3-10—Show at Harrisburg, Pa.  
February 3-10—Show at Montreal, Canada; Automobile Club of Canada.  
February 5-8—Show at Lima, O.  
February 5-10—Show of Automobile Dealers' Association of Wilkes-Barre; R. A. Rosenkrans, 37 West Market street, Wilkes-Barre, Pa., secretary.  
February 5-17—Annual exhibit, St. Louis; F. W. Payne, manager, St. Louis, Mo. Pleasure cars, 5-10; commercials, 12-17.  
February 7-9—Show at London, Ont.  
February 10-17—Show at Atlanta, Ga., of Atlanta Automobile and Accessory Dealers' Association; Homer C. George, manager.  
February 12-17—Show at Troy, N. Y.

### Kansas City

February 12-17—Show at Kansas City, Mo.; Wallace J. Terry, manager, 302 Long building, Kansas City, Mo.  
February 12-17—Show at St. Paul; St. Paul Motor Car Dealers' Association; W. R. Wilmet, manager.

### PITTSBURGH

February 12-19—Dayton, O., show; Elmer C. Redelle, manager, Dayton, O.

February 13-17—Show at Grand Rapids, Mich.

February 17-24—Pittsburgh show; Pittsburgh Automobile Show Association, T. I. Cochran, manager, Pittsburgh, Pa.

February 17-24—Show at Newark, N. J.; New Jersey Automobile Exhibition Co.

February 17-24—Cleveland show; Cleveland Automobile Show Co., F. H. Caley, manager, Cleveland, O.

### Minneapolis

February 17-24—Minneapolis show; Minneapolis Automobile Show Association; H. E. Pence, manager, Minneapolis, Minn.

February 19-22—Show of Minneapolis Automobile Dealers' Association, Minneapolis, Minn.

February 19-24—Show at Hartford, Conn.; Automobile Club of Hartford.

February 19-24—Seventh annual show of Omaha Automobile Association, C. G. Powell, manager, Omaha, Neb.

### Cincinnati

February 19-25—Annual pleasure car show; Cincinnati Automobile Dealers' Association, E. A. Kruse, secretary, Cincinnati, O.

February 20-24—Show at Binghamton; Automobile Dealers' Association; R. W. Whipple, secretary, Binghamton, N. Y.

February 20-25—Show of Automobile Dealers' and Traders' Association, New Orleans, La.

### Baltimore

February 20-28—Annual show, Baltimore, Md.; Baltimore Automobile Dealers' Association.

February 21-28—Toronto show; Canadian National Automobile Association; W. J. Ross, secretary, Toronto, Canada.

February 20-28—Annual show, Baltimore, Md.

February 26-29—Annual commercial exhibit; Cincinnati Automobile Dealers' Association, E. A. Krause, secretary, Cincinnati, Ohio.

February 26-March 2—Show at Paterson, N. J.; Paterson Automobile Trade Association.

February 26-March 2—Second annual show Elmira Automobile Club, L. Blumenstein, manager, Elmira, N. Y.

February 26-March 2—Show at Sioux City, Ia., of Sioux City Automobile Dealers' Association.

February 26-March 3—Mississippi Valley show, Quincy Automobile Club, Quincy, Ill.; Harry F. Hofer, director.

February 28-March 2—Annual Davenport show; Woodward Cium, manager, Commercial Club building, Davenport, Ia.

### MARCH

March—Show at Norfolk, Va.

### Boston

March 2-9—Pleasure car show, Boston; C. I. Campbell, manager.

March 4-9—Show at Des Moines; C. G. Van Vleet, secretary, Des Moines, Ia.

### LOUISVILLE

March 6-9—Fifth annual show at Louisville, Ky.; Louisville Automobile Dealers' Association.

### Denver

March 4-9—Show at Denver; G. A. Wahlgreen, manager, Denver, Colo.

March 13-20—Show of Boston Commercial Motor Vehicle Dealers' Association, Mechanics' building, Boston; C. I. Campbell, manager.

# Chicago Commercial Show Demonstrates of Power

**If This Branch of Industry Continues Its Growth, Soon Annual Exhibitions Will Be as Large as Pleasure Car Events**

**N**OTHING testifies more to the growth of the commercial motor vehicle industry than the shows. In December, 1907, an attempt was made to promote a separate exhibition for the power wagon and it failed because the time was not ripe. There were not enough makers to pay for the expenditure of so much energy as was necessary to put on such a show; those that were in business only were creeping—they had not had time to learn to walk. Business men had not been aroused to the utility of the power wagon and were not interested enough to go to a commercial show. Therefore, the idea was put on the shelf until such a time when the American public demanded a distinct and separate show for the motor-propelled vehicle.

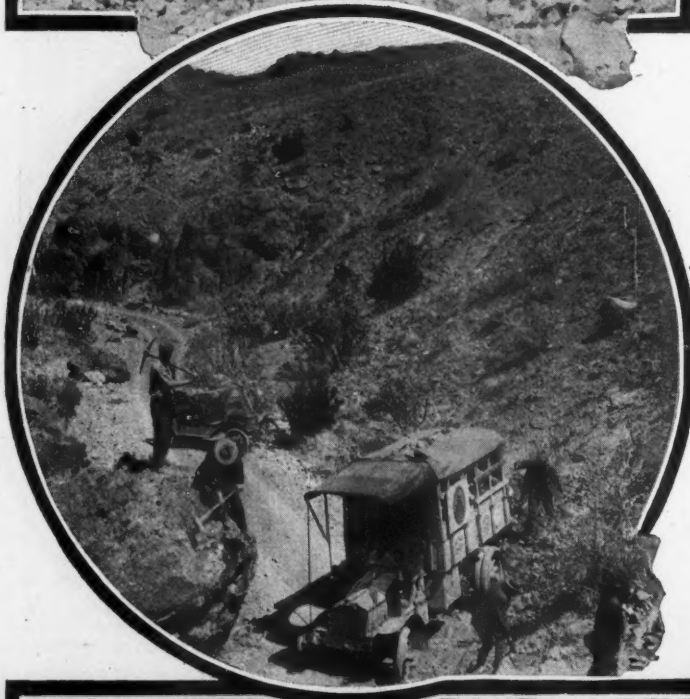
It was the National Association of Automobile Manufacturers which conceived the idea of staging a power wagon show and the affair was put on in connection with the fifth annual N. A. A. M. show in Chicago. Old Tattersalls', a relic of the world's fair and which was a huge building which was put to a variety of uses, was secured. It was within a couple of blocks of the Coliseum and it was thought that making tickets to the pleasure car show good also for the commercial proposition that the people could be induced to go to Tattersalls'. That the idea did not hit the right nail on the head was shown by the fact the N. A. A. M. abandoned it for a time. Old Tattersalls', however, can claim the credit of having housed the first distinct commercial motor vehicle exhibition in this country.

The show that opens next Monday in the Coliseum will prove the progress of this branch of the industry and demonstrate that the stripling of 5 years ago now is a man grown—almost a giant in fact, because now the immense strides made in the power wagon branch have carried the makers in this class to almost even terms with the manufacturers of pleasure cars. The Coliseum affair

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UTILITY OF THE POWER WAGON—IN CANYONS OF FAR WEST AND ENGAGED IN INTERCITY TRAFFIC

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# Great Progress Wagon

Even in 1 Year Advance Has Been Most  
Marked—Coliseum Next Week Will House  
Eighty Different Makes of Vehicles

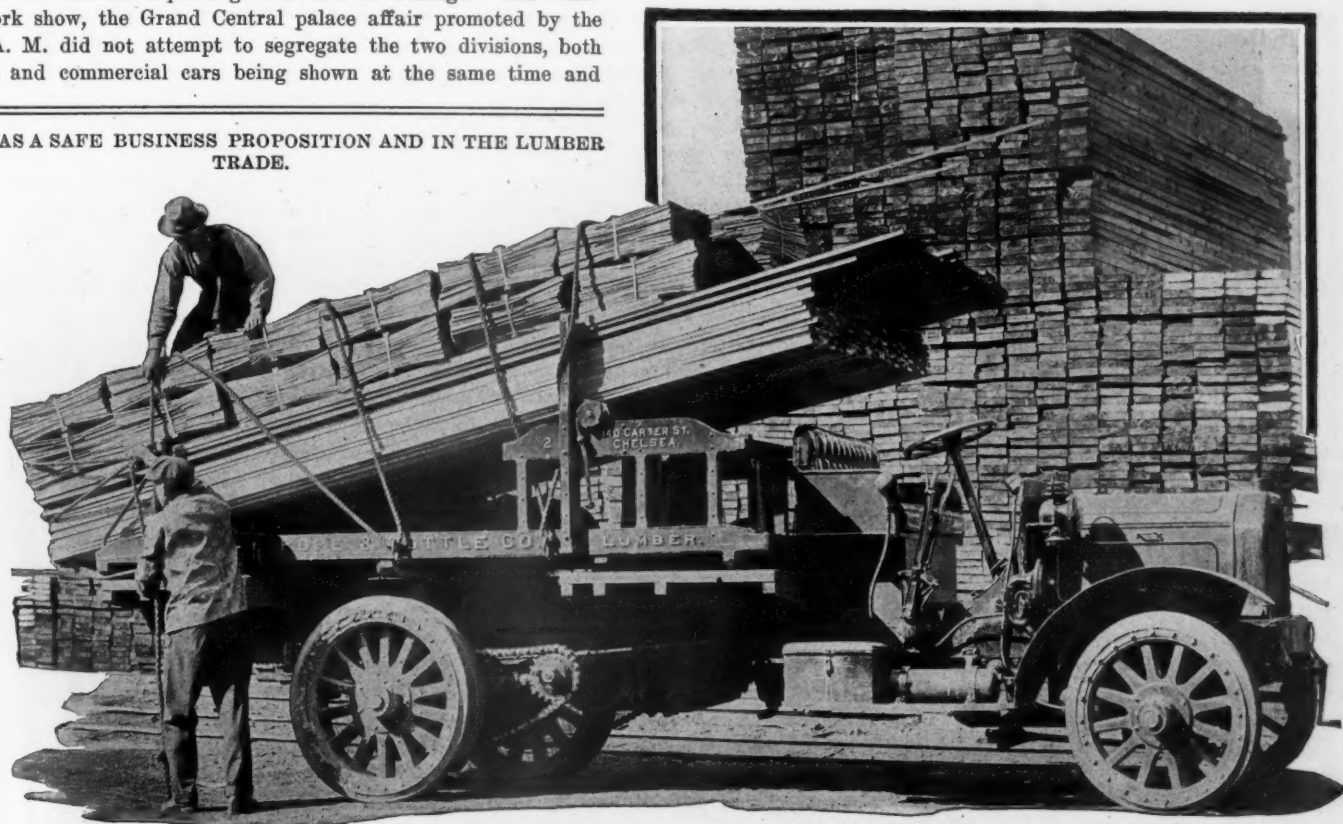
which begins Monday will have more than eighty makes of trucks and light deliveries on view; the pleasure car section which closes Saturday night has ninety-six different makes on the floor. Here figures rather than words tell of the progress of the truck folk. Another year at the same pace and the power-driven commercial car will be larger than that made by those in the passenger division.

It cannot be said that the commercial show came into its own until this year. Following the failure to achieve success in 1907 there was nothing done regarding a separate show until last year when the powers that be, discovering that the demand for space in Madison Square garden, New York, and the Coliseum in Chicago was such that they no longer could find room for the commercials in connection with the pleasure car display, so the Association of Licensed Automobile Manufacturers, which then was in existence, decided to spread its show over 2 weeks, giving the second week over to the makers of power wagons. This idea also was taken up by the N. A. A. M. for the Chicago show, so last winter saw distinct commercial shows in both New York and Chicago, each of which was a success. From this it is evident that there is room for the commercial exhibitions and that it is best to segregate them from the pleasure car shows. A peep into the future should be gratifying to the manufacturers of the power vehicles.

The experiment being a success, the same idea was carried out this year in Madison Square garden and at Chicago. The other New York show, the Grand Central palace affair promoted by the N. A. A. M. did not attempt to segregate the two divisions, both pleasure and commercial cars being shown at the same time and



TRUCK AS A SAFE BUSINESS PROPOSITION AND IN THE LUMBER  
TRADE.



together. One gets an idea of the advance made in a year by a study of statistics which shows that whereas the Chicago commercial show a year ago had forty-six makes of power wagons, this year there are more than eighty. The garden does not show such an increase, there having been thirty-two makes last year and thirty-three this time. There is no count on the palace for 1911 because of that event having been an independent affair and not under N. A. A. M. auspices. However, the palace commercial show this year had thirty-four makes.

Again going back to the commercial show of 1907 one finds that of the twenty-one concerns which had space in Tattersall's then, only five are booked for display next week—Pope, Rapid, Brush, Knox and Reliance. Most of the others have had the short end of it in the survival of the fittest and few there are of the pio-

neers of 1907 who now are numbering in the ranks of the industry. In that old show there were the American Motor Truck Co., of Lockport, N. Y., showing a four-cylinder truck; the Brush Runabout Co., of Detroit, a 600-pound delivery wagon; Commercial Motor Truck Co., of Plymouth, O., a 2-ton truck; Coppock Motor Truck Co., Decatur, Ind., a 1-ton truck; Couple-Gear Freight Wheel Co., of Grand Rapids, Mich., a 5-ton truck and a 1-ton delivery wagon; Gifford-Pettit Mfg. Co., a 3-ton truck; Knox Automobile Co., Springfield, Mass., a 1½-ton and a 3-ton truck; Lambert Motor Truck Co., Anderson, Ind., a 3-ton truck; Oscar Lear Automobile Co., Springfield, O., 2½-ton stake Frayer-Miller truck and a combination chemical and hose wagon; Meiselbach Motor Wagon Co., North Milwaukee, Wis., 2-ton brewery wagon; Mitchell Motor Car Co., Racine, Wis., 1½-ton truck and light

delivery; Pittsburgh Motor Vehicle Co., Pittsburgh, Pa., delivery wagons; Pope Motor Car Co., Toledo, O., electric commercial wagons; Rapid Motor Vehicle Co., Pontiac Mich., buses, motor buggies and trucks; Reliance Motor Car Co., Detroit, Mich., trucks; Safr Automobile Co., Zurich, Switzerland, 5-ton truck; Sayers & Seoville, Cincinnati, O., 1½-ton truck; Studebaker Automobile Co., South Bend, Ind., trucks and light deliveries; Weeks Commercial Vehicle Co., Chicago, light delivery; Worth Motor Car Co., Kankakee, Ill., sightseeing cars and trucks.

Tattersalls was plenty big enough and after this show the commercial show proposition lay dormant until last year when the Coliseum was set aside for the power wagon display. It filled comfortably, but there were no premiums offered for space. This year, however, it was necessary to also secure the armory.

## Interesting Business Men in the Commercial Vehicle Show

**U**NDoubtedly the secret of the serious interest displayed in the commercial vehicle shown in New York, the large attendance of business men and the important sales effected and the many good prospective customers secured by the exhibitors lies in the earnest efforts put forth by the managers of the shows to secure precisely these results. How this was accomplished for the eastern shows makes an interesting chapter, and probably an unprecedented one, in industrial show promotion. It reflects the broad-minded and liberal policy of the show committee of the Madison Square garden exhibition and of Manager Miles of the Grand Central palace and Chicago shows. The exhibitors of commercial vehicles share enormously in the benefits resulting from the work without having to shoulder the very heavy expense entailed. It is a general measure of encouragement and real help meted out to the newly developing branch of the industry in a most careful manner.

### Get an Early Start

As long ago as last summer a commercial vehicle publicity department was established at the headquarters of the National Association of Automobile Manufacturers in New York for the prosecution of this work. It was put in charge of H. W. Perry, who directed a similar campaign last winter for the Chicago show only. The principal work consisted in compiling lists of names of industrial and commercial concerns throughout the northern and middle tier of states from Maine to Colorado, and of circularizing these companies with literature announcing the coming shows and their importance.

When the work of compilation was completed it was found that there were forty-five separate and distinct lists, embracing a total of more than 40,000 names and

### Careful Methods Used by the N. A. A. M. To Insure Big Attendance Described in Detail

addresses. The lists were made up by states and cities and embraced only the names of companies the nature of whose business required hauling or delivery by wagon road. The regular lists included companies having a financial rating of \$100,000 or more, but in New York and the metropolitan district, and in Chicago and other Illinois cities a rating of \$50,000 and up was used. It was assumed that only the more important companies located at a distance from the cities where the shows were to be held would go to the expense of sending representatives to the shows; and this assumption has been verified by the results.

### Reaching the Retailer

But in order to reach the retailer and give the makers of delivery wagons and light trucks an equal chance with the heavy-truck maker, special lists were compiled embracing companies with ratings of \$10,000 to \$50,000 in the territory within 20 miles of the show city. Thus, the retailers' list for the metropolitan district embraced nearly 10,000 names.

Supplemental lists of industrial and commercial concerns were made up from lists of members of many important trade associations, such as the Illinois Manufacturers' Association, Chicago Association of Commerce, National Association of Brewers, lumbermen, metal manufacturers, hardware manufacturers, box makers, publishers, team owners, and so on, and local associations of coal dealers, lumbermen, woolen, cotton, silk and clothing merchants, and others in New York and Chicago. These special supplementary lists

contain more than 8,000 names. Then, in addition, there were preferred lists of names of attendants at the New York and Chicago commercial vehicle shows of last winter from which had been culled all the doubtful names. There were 1,800 such names on the Chicago list and 1,500 on the New York list.

Owing to the remarkable interest taken by city officials in motor fire apparatus, patrol wagons, ambulances and other special types of power wagons for municipal work, a special list was made up of the names of mayors, fire and police chiefs and commissioners, superintendents of streets, members of boards of public works, boards of health, education, parks and city engineers and electricians. These lists contained more than 2,500 names, divided about equally between eastern and western territory.

Similar lists were prepared also of electric power and railway officials, containing more than 1,300 names, and of steam railroad officials, containing 650 names of officers and heads in the operating departments.

### How New York Did It

Alfred Reeves and M. L. Downs, for the garden show committee, decided to repeat the plan adopted the winter before and simply issue formal invitations to attend part II, inclosing a card to be filled out with certain specific information and turned in at the box office before the holder entered the gate at the show. This precluded any foreknowledge of the success of the work until the show was actually under way, but the results have been satisfactory.

Manager Miles, for the palace and Chicago shows, decided to repeat the method adopted for the second week of the Chicago show a year ago, which consisted in sending circular letters and return postal



cards to every concern on the lists, varying the tenor of the letter to suit different classes of buyers, such as municipal officials, electric power companies and business concerns. The return cards called for considerable detailed information and were to be sent to the publicity department in advance of the opening of the show. A second or follow-up letter was sent to all who failed to respond to the first by signifying their intention to attend the exhibition.

#### 100,000 Letters Sent Out

It will be seen that this entailed a tremendous amount of work and detail. Of the forty-five separate lists of names, eighteen eastern lists had to be addressed for the garden and palace shows, two lists—western New York and western Pennsylvania—were addressed five separate times each—once for the garden invitations and twice each for the palace and Chicago shows, and three lists—Ohio, Indiana and Michigan—were addressed once each for the garden and twice for the Chicago show. In all, upward of 100,000 circular letters were sent out between Christmas and the opening of the shows.

Elaborate record and checking systems had to be devised and a variety of forms and color combinations adopted to prevent duplication in addressing to guard against making wrong enclosures, and to avoid sending duplicate tickets to the same individuals, who by chance would receive and fill out two return cards.

Before the palace show opened complimentary tickets of admission were mailed to all whose names were supplied upon the return cards, provided the card bore evidence of coming from a responsible person connected with a house that would properly be in the market for a commercial motor vehicle.

This same plan has been followed in connection with the Chicago show. It has the advantage of enabling the show management to forecast with almost absolute certainty the success of the commercial show, to tell the percentage of increase in attendance to be expected over that of last year and to know precisely where a majority of the prospective buyers are coming from, what class of business they represent and even the individual concerns that will be represented and who will attend the show from each.

Obviously, this work entails a tremendously heavy expenditure for promotion and publicity, but its value to the exhibitors is altogether beyond measure. To it more than to any other single factor is probably due the remarkable impetus given to public interest in motor trucks, delivery wagons and fire apparatus during the past year.

Take the returns from the work for this year's Chicago show for example. Going over the cards sent in by municipal officials, it is found that they come from twenty-four cities in Illinois, twelve in Iowa, eleven in Ohio, nine in Michigan,

four in Wisconsin, four in Minnesota, five in Pennsylvania, two each in Indiana, Kansas and Kentucky, and one each in Missouri, Oklahoma, Arkansas, Texas and Washington, D. C. This makes a total of eighty cities in fifteen states that will be represented.

This does not mean that there will be perhaps eighty or 100 people at the show to look at municipal vehicles for the governments of those eighty cities. Hardly a city among them but will be represented by from four to half a dozen officials. And in most cases these representatives include the mayor, fire chief, police chief and president of the board of public works, board of safety or similar important office.

To be specific at the risk of becoming tiresome, the cards show that the mayors of the following cities have signified their wish to attend the show: In Illinois, Danville, Decatur, LaSalle, Rock Island, Rockford, Sterling, Jacksonville, Joliet, Mattoon, Moline, Peoria, Springfield, Aurora, Elgin, Kankakee, Kewanee. In Iowa, Council Bluffs, Fort Dodge, Dubuque, Iowa City, Keokuk, Waterloo and Mason City. In Ohio, Elyria, Sandusky, Youngstown, Findlay and Marietta. In Michigan, Benton Harbor and Port Huron. In Wisconsin, Eau Claire, Racine and Fond du Lac. In Pennsylvania, Scranton. In Indiana, Hammond. In Kansas, Atchison and Leavenworth. In Kentucky, Lexington. In Oklahoma, Oklahoma City; and in Minnesota, Mankato—altogether, mayors from forty cities.

Going through the return cards in the same way, they show that fire chiefs from thirty-seven cities are planning to come to the Chicago show. Yet, a smart salesman at the exhibit of a prominent maker, who displayed a very interesting piece of motor fire apparatus at Madison Square garden last week, had the boldness to assert and maintain that fire department officials did not and would not attend the show. It certainly looks as if many of the manufacturers were overlooking a good thing by failing to show fire apparatus and other municipal vehicles at these shows, when officials turn out so readily in response to the circular work done by the show publicity department.

#### Chicago Prospects Bright

Almost equally good results have been obtained from the lists of electric power and railroad companies. The returns for the Chicago show have not been tabulated yet so that it is impossible to give such detailed information in this case. The same conditions obtain with regard to the returns from industrial and commercial concerns, which have not yet even been counted. It is estimated, however, that they run into the thousands and that each card represents on an average three individuals. They come from companies as widely scattered as the cards from municipal officials, and many have been filled out by companies that are the largest in the world in many lines of business. Their

names are household words through the length and breadth of the land. Quite a number are known to be among the largest users of commercial motor vehicles, with fleets of anywhere from twenty to four or five hundred power trucks and wagons.

Important and successful as all this work is, it constitutes only a part of the campaign of publicity mapped out by the show management and put into effect by the publicity department. Succinct special articles dealing with various phases of the motor truck question and all designed to be of a direct educative nature have been prepared and sent to several hundred leading periodicals devoted to different trades, such as the lumber, furniture, machinery, brewery, milling, piano, hardware, oil and paint, drug, textile, boot and shoe, leather, coal, and so on. These articles were accompanied by photographs obtained from truck makers who had taken space at the shows for display of their machines. Care was taken to obtain pictures of the vehicles engaged in actual work and to send to each paper only such pictures as had a direct application to the trade it represented. This work met the most liberal spirit of hearty co-operation on the part of the editors and publishers of these periodicals. Their influence among their readers is powerful and their support of the shows undoubtedly has had much to do with the excellent proportion of postal card returns from the circular work, particularly from the second or follow-up letters.

#### Work of Publicity Department

Other special articles and photographs were supplied to the motor and special commercial motor vehicle periodicals. To the eastern daily and Sunday papers, numbering about 1,350, was furnished a third special series of articles pertaining to the motor truck industry in general and to the shows in particular. And a fourth set of news bulletins relating directly to the Chicago show was mailed each week during December and January to an equal number of western daily and Sunday papers.

Perhaps because they have been surfeited with reams of press agents' stuff from individual makers of pleasure cars for several years, or as yet have failed fairly to gauge the future advertising patronage to come from truck and delivery wagon makers, the daily papers cannot be said to have responded to the commercial vehicle propaganda to the extent that the miscellaneous trade papers have done, notwithstanding the latter have not as yet received from the manufacturers the same amount of encouragement as the daily papers through the display columns that the daily papers have had.

Which, after all, is beside the question, which is the success of the coming commercial car show in Chicago week after next, and that never has been a question at all since the success of the first annual motor truck show last February.

# Versatility of the Motor Truck Proven

IT will take but a glance at the commercial motor vehicles exhibited at the Coliseum next week to demonstrate that the motor truck is the most adaptable and has the widest range of usefulness of any transportation vehicle; while a few minutes' study will convince one that all that is hindering its universal use is the undeveloped state of our present delivery facilities in all lines of business. When these systems are developed and scientifically managed the motor truck will come into its own.

Our steamboats keep to the rivers and lakes, must be laid up in winter in most sections of the country, and at the same time can operate with profit only between cities and for long hauls. Locomotives have their route mapped out for them in lines of steel from which they cannot diverge; the motor car must hold to the roads, and depends for its success largely on the condition of the surface, the newly arrived flying machine must travel in the air, and is limited in this as well by the condition of the ground beneath as a landing location, but the commercial motor vehicle goes in all directions with all classes of load and road conditions. It crosses the rivers on bridges, and fords the smaller streams, it can follow the rails and do service on them for freight or passenger service, it works mostly on the roads, but can work efficiently on bad surfaces where a car is hindered. When the occasion demands it can leave the roads and travel across country on surfaces impossible to any former method of travel. Motor vehicles are plowing our fields, and hauling freight across trackless desert with an extreme degree of reliability, and indeed have entered all lines of life.

## From Cradle to Grave

The cry of the new arrival is mingled with the clang of the gong on the modern motored stork-wagon as the ambulance is off again from the hospital at the call of a new case. Each day the doctor calls on the new boy of today in a taxi perhaps, and the newcomer learns the smell of gasoline. The milk for his repast is brought to his door by a motored dairy wagon, while on the farm from which it came other motored vehicles are handling the fodder, and all the products and by-products of the farm. Motored plows turn the soil, and motored cultivators prepare the ground while a tractor draws the machines which plant the seed. In the fall the grain is cut and threshed by motor vehicle power, and the major part of the harvesting of the crops is taken care of by these machines of so many lines of usefulness. Ensilage is cut and stored away for the winter use of the cattle by the same means. Thus the child lives and grows to the hum and spin of the motor vehicle.

## Power Wagon Goes Places Where No Other Vehicle Can and Has Demonstrated Its Reliability in All Lines of Business—Armies Taking Up the Proposition

As he gets older he rides to kindergarten in a motored wagonette, and later rides on motored street cars in rural districts. Coming to manhood and entering college his study includes problems of the commercial motor vehicle whether he be in engineering, and studies it from the standpoint of design; whether in economics, as a factor in civilization; in business methods, as a means to efficiency; or in military lines as a unit of offence and defense. Even for travel he must study the commercial vehicle and its use abroad before he lays out his route, if he would see things best.

Coming to real manhood and entering business he uses all the knowledge gained thus far in applying motor vehicles to his business whether he become butcher, baker or candlestick maker; manufacturer, merchant, or large farmer. City and country are alike fields for the service of his trucks, and an opportunity for his business, motor vehicles increasing the range of his delivery service, if he be a merchant, 100 per cent over horse installations. If a contractor he can take jobs many miles further away from his base of supply than his father could with old methods, and still make a good profit. Indeed his opportunities for the rational use of the motor commercial vehicle, be it truck or tractor, are limitless.

Coming into success he takes a vacation, tours in a refined commercial car with sleeping accommodations, dining arrangements and all comforts of a traveling house, and when his work is done he travels to his grave in a motored hearse. From the cradle to the grave the modern man is surrounded by the influence of motor trucks and tractors, bound in with his very life and health, cooked in with his flour and flesh, a part of himself and a part of his very existence. No other vehicle can serve in so many diversified lines.

## Used on Railways

Some of the commercial vehicles mentioned are specially built, as, for instance, the railway cars—merely trucks designed for the new work, however,—some are merely special body arrangements and mechanisms on standard chassis constructions, and a few are standard. In these days the idea of using the power available in the motor when the vehicle is standing still is coming to the front. Lumber, coal, building materials, etc., are being hauled by motor and at the end of the journey dumped by the motor's power. Motor wagons are hurrying to fires all over the world, and on arrival turn the power of

their motors, not only to throw streams of water larger than accomplished in former steam fire engines, but to raise ladders and standpipes and towers to inaccessible places. Trucks fitted with cranes are lifting safes and machinery by their motor's power, and crane trucks of smaller size are handling freight in loading and unloading cars and larger trucks about railway yards. Even trunks on our railway station platforms are being carried in these days by motored platform trucks.

## Popular with Sons of Mars

Armies are adopting trucks for a wide range of uses. Trucks haul their supplies for the commissary department, and, fitted with armored sides, are used for swift raids and advances on the enemy. Fitted up as machine shops trucks are used in keeping in repair field equipments, guns, motors and aeroplanes. With tank bodies these vehicles not only haul water for army use but filter it as well, so that bad water may be made fit for drinking purposes on distant campaigns. With a searchlight on the platform, motor trucks, furnish electric power for the light for night signalling or for holding off and spying out the enemy. For army use too the Renard train is coming to the fore, while in Death valley a train of this kind will replace the famous team of twenty mules in hauling borax over this trackless and waterless desert. This train will be powered with a Knight sleeve valve motor of 105 horsepower, the largest Knight motor built. The motor in the Renard train is located in the front car, the trailing wagons having six wheels, the middle pair being drivers. A shaft turning these drive wheels runs the entire length of the row of wagons with a universal joint at each coupling, and by the method of connecting the train all the wagons move in the track of the first vehicle, so that, though long, the train can turn short corners. It can travel across country impassible for other vehicles, the arrangement of the six wheels distributing the load under very adverse conditions.

As a development, possibly suggested by success with this truck, a number of six-wheel arrangements have made their appearance in both Europe and America, designed especially for long roads. Abroad the tractor type of vehicle for freight hauling is being used in inter-city traffic.

It is not an uncommon sight in England in the evening to come across a yard filled with these traction motors, generally of the steam type, just in from the day's work and cooling off after a trip of several miles from a neighboring city with a



# Supreme in the Transportation Field

## Varied Uses of Vehicles Are Set Forth, Showing That Nowadays the Motor Figures in Man's Life from the Cradle to the Grave—Increases the Health Standard

number of trailer loads of heavy merchandise. A couple of years ago the writer saw one of these tractors traveling along Piccadilly in London, at the side of St. James Park, towing behind two great steel-tired truck trailers, on each of which was loaded an enormous steam boiler. Such sights are common abroad where their roads and traffic conditions will permit.

Especial interest at this time, however, centers upon truck of standard chassis design rather than upon special constructions. At present trucks are used more largely in city work so that these problems are of especial interest and yet gradually working into new lines of usefulness the application of the motor vehicle to transportation problems is extending in all directions.

### Now a Serious Proposition

When the motor truck was first brought out it was treated rather lightly by both manufacturer and user who hardly realized just what they had ahead of them in the development of a real motor truck and how it was bound up by the system which of necessity surrounded its use. This condition is taken up more fully in a following article. There is even today a surprising ignorance on the part of many dealers as to just what the working conditions are in the use of the product which they are endeavoring to sell. Trucks originally were under-powered, many of them fitted with out-of-date touring car motors which were speeded up to meet the new requirements without any special reference to fitting them to the new class of service. Accessibility was the last item sought for, noise was not considered an especial detriment, and the tire problem was but little understood. Even with these drawbacks there were certain lines of transportation where these machines showed a saving from the start, in one of two directions; either they operated at a less cost than former horse system for the same amount of service or, costing more than horse delivery, they performed transportation feats not possible with the former system. The gain then was either financial or in extra service.

So far as reliability goes there is but little to be desired of the modern truck. Unhindered it can make from three to four times the ton-mileage delivery of a horse vehicle of the same ton capacity at a cost in the neighborhood of twice that of a horse vehicle of the same platform capacity. The service gained is apparent.

It costs the teaming contractor of Chicago an average of \$4.62 per day for

team driver. The packing companies operating their own service are paying about \$7.12 per day for two-horse team and driver, while it costs the department stores from \$6.12 to \$6.50 per day for the same team service. Doubling these figures for these lines of delivery for a cost basis as to the use of a motor truck, one quickly sees that to break even financially the truck must make twice the deliveries in a day that the horse wagon does. Where the truck is unable to do this in any line of modern business it is almost without exception the fault of the city conditions or business limitations which surround it, things which might be easily remedied at the expenditure of a little thought, time and money by those most vitally interested in increasing the amount of motor traffic and decreasing the congestion in our business centers.

At present the greater part of the future success of the motor truck and the versatility of its operations as a unit in the diverse transportation services of our city is in the hands of the commercial engineer and those officials who are best fitted by their position to improve conditions in the hindered districts. We have been so long used to horse methods of delivery that it will take a deal of argument and a measure of persuasion, together with a long campaign of education before the merchant and dealer outside of the big cities can be made to see and understand just how he will benefit when all of these problems are properly dealt with and the truck a universal method of unit goods transportation. In the cities the change must come soon.

### Increases Health Standard

The use of the motor truck will increase the standard of health in our city and in country districts as well 100 per cent. The greatest cause of disease in our cities is the unhealthy germ-laden dust blown from the streets and breathed by every pedestrian. With the coming of the motor truck all of this contamination will be eliminated, the street-cleaning problem will be brought to the maximum of perfection with the minimum of labor and expenditure, and in every way conditions of health will obtain to a much greater degree, while the safety of the pedestrians will be more secured through the more efficient control of the motor truck over the unwieldy horse vehicle.

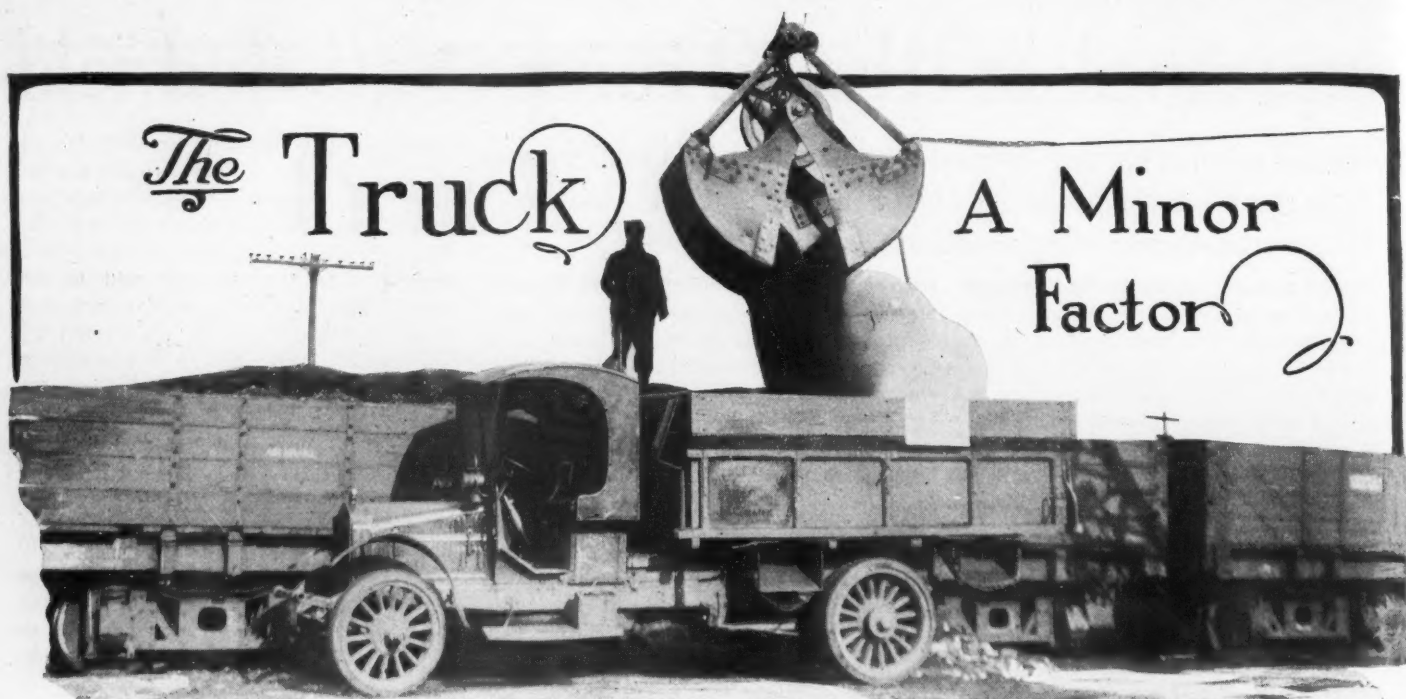
With the elimination of the horse our street surfaces can be constructed smoother and at much less expense, it being highly probable that where traffic is entirely limited to rubber-tired vehicles

a cement form of roadway will furnish every satisfaction. Cobblestones will be a thing of the past since the rough surface will not be necessary in order to obtain traction and the smoother surface of a better pavement will be demanded when the extra efficiency gained in the truck thereby is understood by business men, and when there are enough trucks in use to make it an object for the merchants to get together with such an object in view as the proper meeting by the officials of such of these problems are necessary of consideration. All of this will mean that the greater percentage of the noise of the cities will be absolutely eliminated and a host of other advantages will accrue with increasing use of the motor vehicle which cannot be foreseen as yet, but which are bound to appear in the near future as trucks increase in numbers and influence. Every truck put upon the streets is doing a service to the city in which it is operated, not only in lessening congestion by its greater speed and lesser space occupied per capacity, but in the lessons which it is teaching in similar lines of traffic. Each truck put in operation brings a cumulative increment of machines, each a factor in the solving of many commercial problems of the day, not all of which, as we see them now, are directly concerned with transportation itself but which we are learning are vital factors in the success of the quick transportation method. If the problems of the city can be met the experiences thus gained can be quicker spread than in any other way so that at this time the outline of civic problems in connection with truck use are of especial value and import to the manufacturer, the dealer and the user.

By a knowledge of actual conditions existing in cities the manufacturer is enabled to design a car or truck overcoming the disadvantages which now obtain, the dealer is better able to advise his prospective purchaser with regard to the type of truck which will best suit his needs and assist him in outlining the system which should surround his motor equipment while the prospective buyer of a truck will have a broader knowledge and a more intelligent conception of just what he must buy to fit into his particular needs than can be gotten by any amount of theorizing.

### Problems That are Faced

Yet even under these conditions and with the hinderances of modern traffic condition, unloading facilities, poor street surfaces, etc., trucks are running and making good in delivering for the butcher and the baker, the grocery store and the dry cleaner, the coal company and the pie trust, the sausage maker, the electrical man, the theater, and even in found in soap factory service.



CRANE-LOADING OF COAL AT CITY FUEL CO. YARDS AT CHICAGO

THE system of using and operating a commercial motor vehicle is even more important than the vehicle itself. An inferior truck surrounded by proper conditions of operation can pay big dividends, while without the proper system working with it the finest and most highly developed truck made cannot save money for its buyer.

When five antiquated trucks can accomplish a delivery service aggregating 5,430 miles in the course of a month's running at a total expense of \$231.58, there must be something in the system surrounding them worthy of study. During the month of November last these figures represent the actual outlay for the service of five trucks of an old original single-cylinder air-cooled side-spring Knox type, which their very makers, in the light of their present knowledge and class of output, would designate as antiquated and yet whose performances indicate to the contrary. The machines in question are used by the city library of Chicago under the management of William A. Purer.

The first of the library fleet of trucks was bought in June, 1905, when two Knox vehicles were put into service, one of them being given into the hands of John Barchard, driver, who is today driving the self-same truck. This speaks well for the system of handling the drivers as well as the trucks. In December of the same year another truck of the same make was purchased and two more were finally bought in May, 1907, and July 9, 1908, respectively. All these are still doing daily service, as seen by the following:

	Miles per day	Bought
North side truck.....	32	June, 1905
Northwest truck.....	42	May, 1907
South side truck, West Pull- man.....	43½	Dec., 1905
Southwest truck.....	40	June, 1905
South side return and extra.....	47½	July, 1908

### System Surrounding a Motor Truck's Use of Greater Importance Than the Machine Itself—Chicago Public Library Delivery an Example of This—Other Instances Cited

The south side route, though shorter than the return route last named is called, the long trip on account of the execrable condition of the roads in the section where it goes.

All this works out to an aggregate mileage of 5,430 for the five trucks in the course of a month's usage at a total machine expense of \$231.58 or 4.5 cents per mile.

#### Expense Decreasing

With added experience the expense of running these cars has been less each year than in previous periods, in spite of the fact that the trucks themselves were growing older through service. This was accomplished with a closer adherence to schedule and more territory has been covered each year with greater exactness. All book delivery from the city library is now taken care of by the fleet of motor trucks with the exception of the service to Edison Park, Norwood and Chicago Lawn, to which points they are sent by railway shipments. There are 113 stations, and it is declared that not more than two or three deliveries are late in a year.

The trucks leave the library at stated times and run on as definite a schedule as a railway, each sub-station knowing just when to expect its consignment of books. These are packed in steel trunks, a trunk for each station to be visited, so there is very little time lost in loading and unloading. The usual delivery stop occupies a space of 4 minutes.

As for repairs and mechanical inspection,

each driver takes care of the machinery of his own truck and is directly responsible for any breakdown which may occur. To allow time for his inspection and overhauling 2 hours time per day is allowed, and there is a small machine shop on the premises with an ordinary equipment of tools so that work all except very serious breakdowns are handled directly on the premises, while the cars are kept in their own garage at the rear of the library building.

While the drivers are responsible for the machinery of the truck and its cleanliness, the exterior appearance is taken charge of by the garage man. Of late, on account of lack of funds, this same garage man has been conspicuous by his absence, so that the appearance of the library trucks has not been up to the standard so far as the exterior is concerned.

#### Drivers Are Interested

No bonuses are paid to the driver for any extra performances, as each man is supposed to be hired for his best service without extra reward. As an illustration of how this plan works out, nearly every driver has been with the library for a number of years,—takes a personal pride in the keeping of his own machine, and, as before stated, John Barchard, who took the first truck which the library bought, is still driving the same machine; probably a record for continuous service without change of trucks.

A peculiar circumstance in connection with the particular machines used by the



library and the service to which they are put is that the front tires wear out before the rear. As a general proposition the front tires last about 10 months and the rear 14. Car tracks are largely responsible for the difference in wear. In explanation of the tire economy, it might be stated that the library trucks are permitted to run on the boulevards, whereas other power wagons are obliged to keep on the city streets. It would be interesting to know what the latter could do in the tire line were they allowed the privileges the library has.

Here is a case where the business itself allows the truck to run a large part of the time with few periods of idleness, and it is because of this that the truck has made good in this service. A regular schedule is not allowable in many lines of delivery work, nor are conditions so favorable in other ways.

#### Should Study Conditions

In some lines of delivery, service is so limited by business or traffic conditions, many of them unavoidable at present, that the truck cannot be made to pay, and the salesman who permits a firm to buy a truck knowing that it will not fit that particular class of business is making a mistake. Few, if any, of the failures in motor truck service are due to the truck but to lack of knowledge or opportunity on the part of the user. If it takes a truck 40 minutes to cross 2 miles of Chicago streets on account largely of the congestion of South Water street, as happened on one occasion with the Morton Salt Co., the motor truck cannot be blamed for not making mileage, and never can



LOADING A SHOVELFUL A MINUTE—FIVE SHOVELS FILL THE HORSE TRUCK

work to its capacity or efficiency in this district until this congested condition is eliminated, and South Water street reformed.

Thus there are cases where even with trucks of the best makes, no saving over horse vehicles can be possibly effected under present conditions, though many times extra advantages obtained by truck use in other ways make up for the extra cost.

Take the use of the motor truck in the coal business in Chicago for instance, and as a particular case in point the experience of the City Fuel Co. with a 6-ton truck

of a make whose standing is unquestioned, but with non-dump body.

Here are short hauls with inadequate unloading facilities, and congested traffic as well to contend with. There is \$6,000 invested in this truck. On January 3 last it made seven trips; on January 4, six trips. Take the record of the latter day for example, the trips being as follows; all trips being from the yards at Twenty-fifth street and Cottage Grove avenues:

Trip 1 to.....	Van Buren and La Salle
Trip 2 to.....	New York Life Building
Trip 3 to.....	36 South Franklin
Trip 4 to.....	Van Buren and Clark
Trip 5 to.....	1700 State
Trip 6 to.....	New York Life Building

The average run was about 1½ miles; actual running time, about 1 hour in the day.

#### Work of Horse Team

A two-horse team—meaning an investment of \$1,000—on the same day from the same yards made the following deliveries:

Trip 1 to.....	New York Life Building
Trip 2 to.....	719 O'Brien Street
Trip 3 to.....	160 North Fifth Avenue
Trip 4 to.....	Madison and State Streets

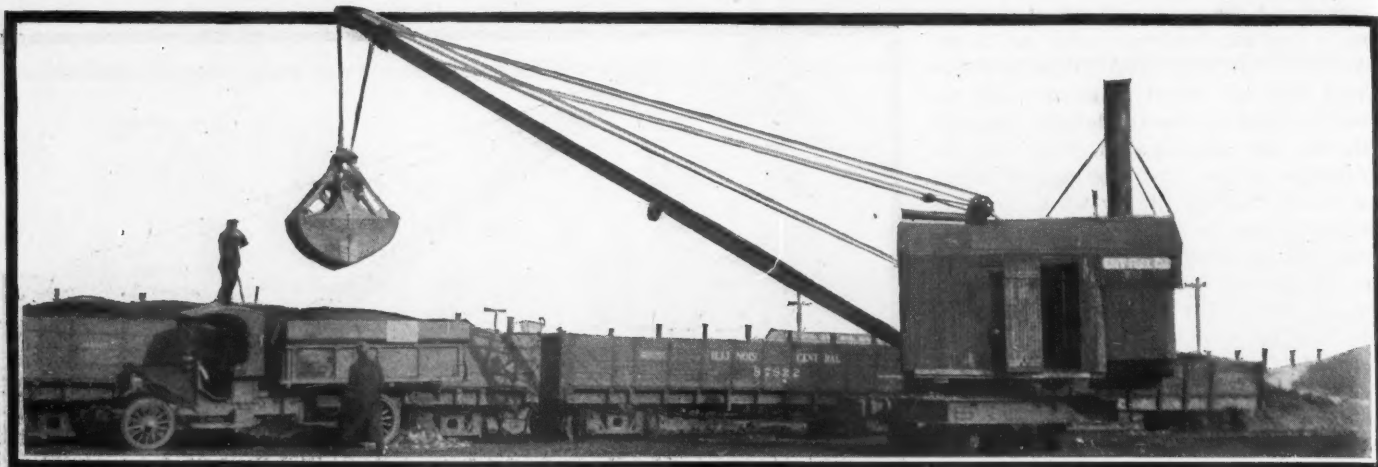
This very evidently is a case where, under the present systems and receiving conditions the truck is hindered from making a showing. In the first place unloading is done by hand. This is not the fault of the coal company for it has tried several types of dumping bodies, but states that it has found that for the soft coal so commonly used in Chicago there is as much labor in getting the load to dump and in making the coal run after the load is lifted as there is in shoveling. For its class of work it seems to need some other type of self-unloading body which will fit some of the special conditions, conditions as may be shown by a few illustrations, which are given herewith.

While 80,000 tons of coal are delivered to the public schools of Chicago every year, no one of these schools has any



SOUTH WATER STREET CONGESTION

Passing through this district it took the truck of the Morton Salt Co. 40 minutes to travel 2 miles, which gives an idea of the congestion in commission house district



THE CITY FUEL CO. CAN LOAD ITS 6-TON TRUCK IN 7 MINUTES

adequate facilities for unloading the fuel by modern methods. In every case the receiving window, according to the City Fuel Co., is at least 6 feet from the ground, so that not only must the load be shoveled from the wagon or truck, but it must be lifted to the level of the window as well. A few hundred dollars spent in equipping the schools with unloading facilities or in so placing the windows that dumping bodies could be used on the trucks, would save in a year enough to pay for the equipment several times over. To shovel 80,000 tons of coal by hand costs considerable money, not only in the time of the men unloading but the idle moments of the wagon. In the case of a motor truck this loss would be from two to three times as great, so that at present for the delivery of this mass of coal to the schools with any present types of unloading bodies a motor truck is out of the question.

The influence of quick loading and unloading and the length of haul in truck

use is shown very clearly in Fig. 1, the diagram on this page where the horizontal lines represent in their numbered spacings the trip distances, while the vertical lines as numbered give the deliveries that can be made by each system in a 10-hour day.

The curve lines show the comparative use of horse and motor trucks with hand loading and unloading, indicating the gain made by the truck over the horse vehicle when quick loading and dumping body are used. The space between the dotted line of truck use and the full heavy line above shows the great advantage of the quick system. Taking, for instance, a 5-ton coal delivery trip of  $1\frac{1}{2}$  miles.

#### Influence of Quick Loading

Here 20 minutes are used in loading by hand with four men, 30 minutes in unloading, and 7 minutes on the trip each way when a motor truck is used. With horse vehicles the same loading and unloading time is taken but each trip taking 22 minutes. This makes the time for the horses' trip 94 minutes, the saving made

by the motor truck being but 30 minutes with each load; not nearly enough to account for the difference between a \$6,000 and a \$1,000 investment. In this case the motor truck can make nine trips a day while the horse truck makes six trips, as indicated on the curves at A.

Increasing the length of the run to 3 miles we find that the truck will make seven trips and over to four trips of the horse vehicle, this comparison being shown on the curve at B, the horse vehicle below, the motor vehicle above. The points C on the curve indicate the condition on a 5-mile run, loading time being the same. Here the reader will notice by the same figuring that the horse vehicle makes three trips to six trips of the motor truck. Under proper conditions the truck should begin to be a success over the horse vehicle at about this point for it is accomplishing the work of two teams or twice the work of the single team. Thus a long haul is an advantage. Points D and E show further the results for hauls of 8 and 12 miles with similar hand-loading conditions.

With these two curves it can be seen that the chance of the motor vehicle's paying for itself is comparatively small when put beside the upper curve showing the quick-loading and dumping result. It is supposed, of course, that with the horse vehicle hand loading and unloading is still continued. With the quicker methods a load can very easily be put on the truck in 10 minutes and unloaded in the same time, including the average time to back into position and percentage of waste time. Five tons of coal often are unloaded from a self-dumping truck in 4 minutes.

#### Fast Work Done

Starting again with the run of  $1\frac{1}{2}$  miles and allowing 10 minutes for loading and unloading with the same length of time for the run as in the former comparison a motor truck round trip will take 34 minutes while the horse vehicle will take 64 minutes, allowing seventeen trips for the motor truck as at A to six of the horse vehicle. The second comparison is made on a 3-mile trip as shown at B, designating twelve trips a day for

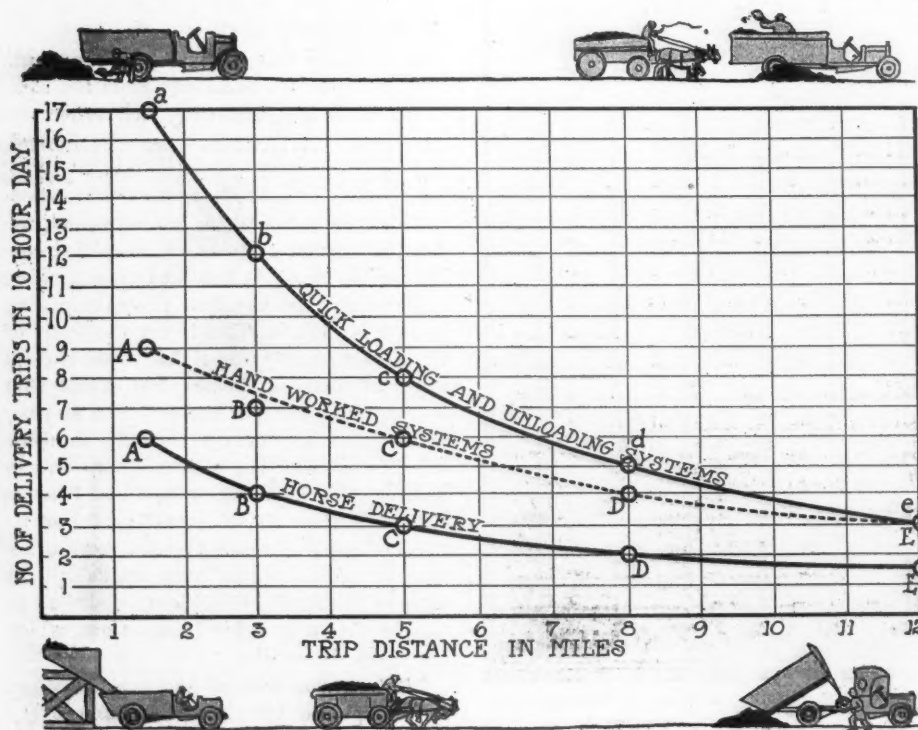


FIG. 1—SHOWING HOW QUICK LOADING AND UNLOADING INCREASES SERVICE



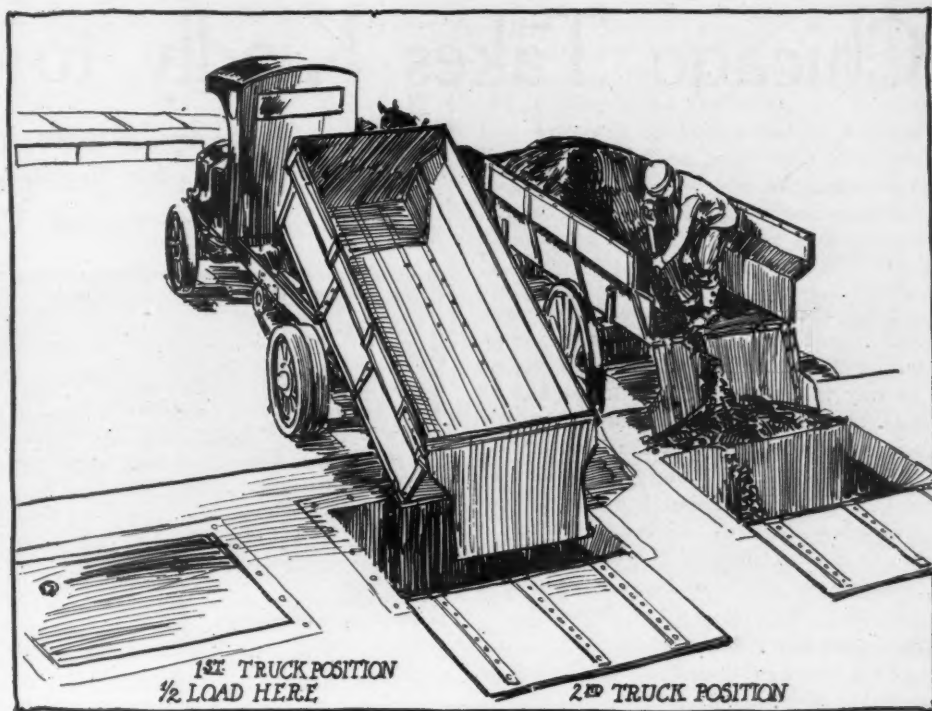
the truck to four of the horse truck. On the 5-mile run against three trips of the horse vehicle eight trips are placed to the credit of the motor truck. The 8-mile run shows the motor truck making five trips to the horse vehicles' two, while at 12 miles the ratio is 3 to 1 in favor of the motor truck.

Thus, while on a run of  $1\frac{1}{2}$  miles with the hand-unloading, the motor truck is not paying for itself, with the quick loading and unloading system the percentage of gain averages up pretty well all through from  $1\frac{1}{2}$  to 12 miles, showing graphically the importance of keeping a truck at work the greatest possible number of hours through the day.

#### Good Example Cited

As an exact illustration of the comparison between unloading by hand or by dumping body, the City Coal Co. made two deliveries of coal to the Karpen building, Chicago, on January 11, one by a dumping-body 5-ton demonstrating Pierce-Arrow truck loaded with  $7\frac{1}{2}$  tons of coal and another by three-horse team and wagon containing  $5\frac{1}{2}$  tons, both of these vehicles arriving at practically the same time to make deliveries to open coal doors in the sidewalk,—a condition approaching the ideal for coal delivery for both vehicles. It will be noted that the delivery conditions were exactly the same for both vehicles, both as to the location of the coal door, condition of street and weather, and in every other particular except the mechanical one. The motor truck, however, on account of the size of its load had to deliver to two different coal doors as shown in the sketch while the horse wagon delivered but to one.

In the first place, it took the truck but 2 minutes to back into place on the slippery street in a driving snow storm, with no discomfort to man or beast. It took



#### SIDEWALK UNLOADING OF COAL BY HAND AND DUMP BODY

Here is a comparison of the difference in unloading coal at the Karpen building, Chicago. The horse truck took 37 minutes; the dump 14, showing superiority of motor service

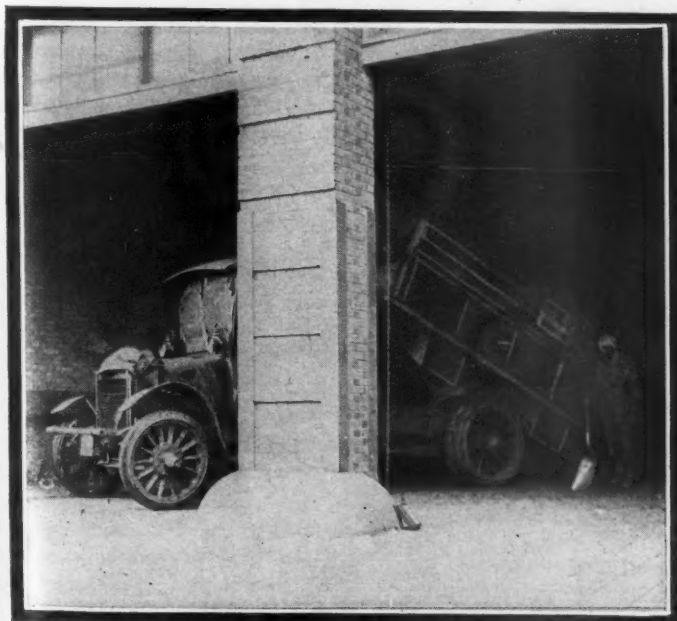
the three-horse team 10 minutes of slipping, sliding and continual trouble, with much language on the part of the driver especially applicable to the condition, before the horse vehicle was even backed into place ready to unload. During this time over half of the motor truck load had been discharged by the dumping arrangement into the first coal door and the machine had moved out and started to complete the discharge of coal at the second door. It took but 3 minutes to discharge over half of the dump-body load door, 2 minutes to move to the second and 4 minutes to discharge what was left, the

extra time at the last being due to the fact that the angle at which the dumping body inclined was not steep enough to make the coal run without assistance from the driver. The total motor figures are:

Backing into position.....	3 minutes
Unloading first half.....	3 minutes
Changing position.....	2 minutes
Unloading second half.....	4 minutes
Dropping body, closing coal door and getting away.....	2 minutes

Total .....14 minutes

After backing up to the curb, one man shoveling, it took 27 minutes for the horse wagon to unload, the driver meanwhile suffering great discomfort from the driving wind and snow. During the last 15



CHICAGO SYSTEM—ONE ALMOST IDEAL AND THE OTHER IMPOSSIBLE  
Where a dump body can be used, City Fuel Co. motor truck can be manipulated here with ease



Typical Chicago school receiving window for coal. Dumping impossible because of height from the ground

# Chicago Takes Kindly to Motor Truck

minutes of the unloading a second coal wagon was awaiting its turn at the coal door when the first wagon should finish. The total time for the 5½-ton load was:

Backing into position.....10 minutes  
Unloading .....27 minutes

Total .....37 minutes

But a short time after the horse wagon had moved away the coal truck again passed the same point fully loaded and on its way to another delivery after having made a 2-mile trip besides loading by steam scoop as shown at the head of this article, merely indicating the amount of service that a dumping body truck can give when conditions are favorable for its use as against some of the other illustrations given where business or handling conditions have not been so favorable.

## Salt Company's Experience

As a proof of the advantage in a long haul the Morton Salt Co. of Chicago, has had very good success in the use of a 5-ton non-dumping truck under very similar conditions as obtain in the coal business, at least so far as unloading is concerned. As in coal delivery to the schools, the bulk loads of salt must, as a rule, be shoveled up to a window or platform higher than the truck itself, this meaning considerable delay at the unloading end of the trip. Since the hauls, however, are fairly long a truck is actually running on the road for a fair percentage of its time so that it has been so far a decided success with the salt company.

Originally this company tried out a 3-ton truck, ordinarily loading a 4-ton load, with the result which might be expected. From this experience it put in a 5-ton truck which has been running since September 23 last, without a single hitch ex-

Statistics Show an Increase of 51 Per Cent in Adoption of Power Wagons by Business Concerns in the Windy City  
—Use of Commercial Vehicles Lessens Congestion



PEDESTRIANS RESPECT THE MIGHTY

*Boston store truck gets right of way where a light delivery would have trouble*

cept a broken spring due largely to the deadness of the load and possibly careless handling. The truck has been doing the work of three teams and three men.

The motor truck is covering from 45 to 60 miles per day, running from 7 in the morning to 6:30 at night, not counting stops. These, as a rule, are from 20 to 30 minutes long on account of the poor receiving system. Fifteen minutes to a load could be saved easily if a chute could be used. The machine has a governor limiting its speed to 12 miles an hour, and carried loads on December 1, for instance, of 9,300, 9,200, 9,550, 7,000, 7,000, 8,850 pounds of bulk salt. This is but an average specimen of the daily loading of this particular truck.

THERE has been an increase of 51 per cent in the number of motor delivery vehicles in Chicago during the past year. In 1911 there were in use in this city, including demonstrators, 850 delivery wagons of 1-ton capacity and under and 592 trucks of over 1 ton capacity.

Just what the use of these trucks means for lessening the congestion in our cities can be shown very simply and is indicated in the accompanying illustration, Fig. 2. Captain Healey of the mounted police of Chicago has made the statement that in his opinion the use of the motor truck will do much toward alleviating a large part of the downtown congestion. He places the average length of the motor truck at 15 feet and horse trucks 25½ feet. Thus, in one aver-



LIGHT TRAFFIC AT STATE AND MONROE STREETS. ARROW SHOWS LINE OF VEHICLES WAITING AT NEXT CROSSING



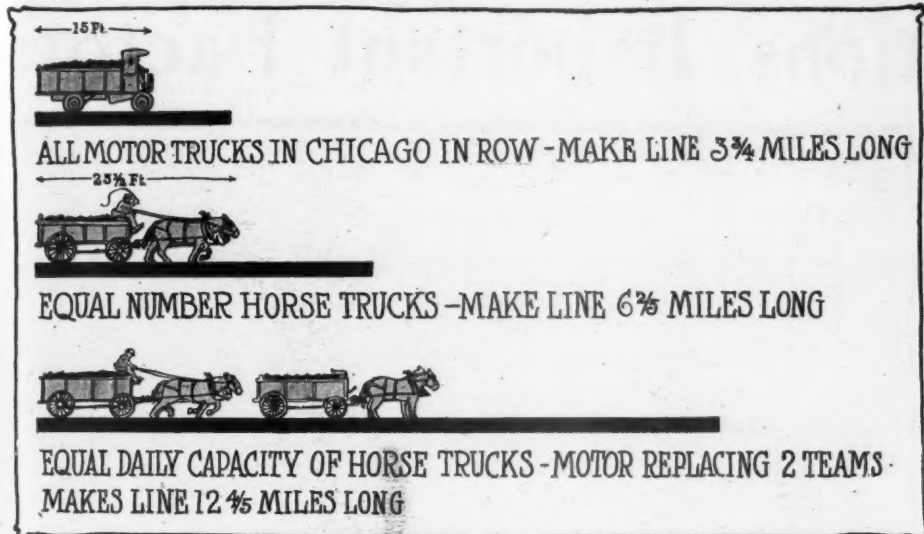


FIG. 2—SHOWING COMPARATIVE LENGTHS OF CHICAGO MOTOR TRUCKS AND EQUAL HORSE EQUIPMENT

## TRUCKS OVER 1-TON CAPACITY AS USED IN CHICAGO

Department stores .....	88
Packers .....	59
Brewers .....	52
Van and storage .....	33
Miscellaneous manufacturing companies ..	32
Commonwealth Edison Co. ....	31
Furniture .....	26
Express companies .....	25
Newspapers, etc. ....	19
Plumbing and heating .....	13
Commission .....	11
Grocers .....	12
Motor tradesmen .....	10
Electric and gas companies .....	10
Teaming companies .....	10
Meat, wholesale .....	7
Meat, retail .....	7
Glass, paint, varnish, etc. ....	7
Passengers .....	6
Machinery .....	5
Coal .....	5
Paper .....	5
Mail order .....	5
Oil .....	5
Ice .....	4
Railways .....	4
Confectioners .....	4
Planos .....	4
Sign companies .....	4
Canning companies .....	4
Books and stationery .....	3
Lumber .....	3
Cigars .....	3
Stone .....	3
Bread .....	3
Clothing .....	3
Fish companies .....	3
Miscellaneous manufacturing companies ..	32
Miscellaneous .....	8
Unknown .....	30
Total .....	592

age block of 500-foot length there is room for thirty motor trucks and but twenty horse trucks.

Taking the length of vehicle given in Captain Healey's average, the 1,325 motor delivery vehicles in use in Chicago at present, if stood in line would make a continuous row  $3\frac{3}{4}$  miles long, this length

being indicated by the upper line in the drawing, Fig. 2. An equal number of horse trucks stood in line in a similar fashion would occupy a space 6 2-5 miles long as by the second line.

Few trucks, however, pay for themselves unless they are able to do in their work the ton mileage of two teams, so that the number of horse trucks of an equal capacity to the number of motor trucks in use at present in Chicago if stood in line end to end would make a continuous row 12 4-5 miles long, long enough, so far as Chicago itself is con-

cerned, to reach from the city hall to Evanston and beyond. The use of these trucks, therefore, saves to Chicago 9 miles of its streets for the width of the vehicle, lessening the congestion of its traffic to just that extent.

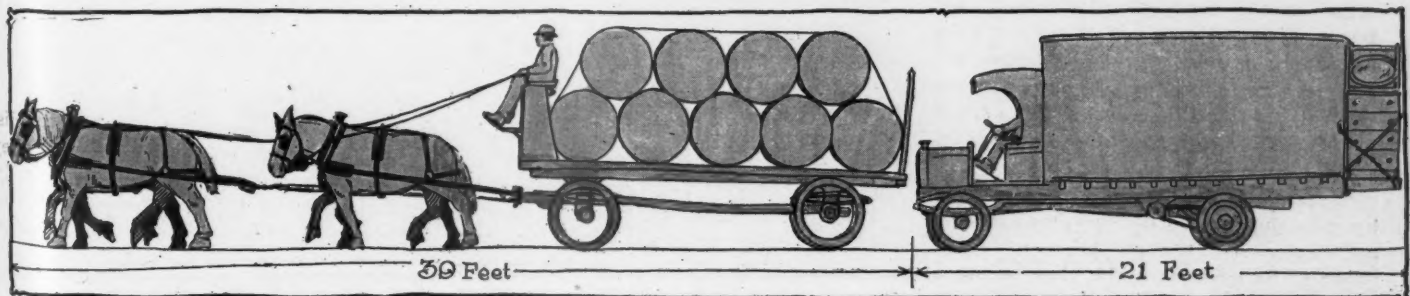
Since there is this saving in space with the use of motor vehicles their advantage so far as lessening traffic congestion is concerned is thus greatest in the busiest business districts, and yet here is just where as a financial proposition the truck works to the least advantage. Congested traffic means that a truck speed is lessened and its efficiency considerably impaired so that while most needed in such places as the Chicago loop district where traffic is heavy, yet here and in such places is probably the last spot at which the motor truck will become common. Since it costs money to run trucks through the congested districts they will steer clear of such places as far as possible. As soon as the going through these districts is facilitated, however, by any means whatsoever, minimizing the stops and delays of a motor vehicle, power wagons can be successfully used in these districts as well as others.

## Some Alley Problems

There are a number of conditions which obtain which make for hindered service in a downtown district. Alley problems are handled in another article, but there are many street problems to be dealt with which are just as important from the standpoint of the user of motor trucks.



COMPARATIVE LENGTH OF HORSE AND MOTOR TRUCK



LENGTH OF FOUR-HORSE TEAM AND WAGON OF CHICAGO TRIBUNE

MOTOR TRUCK WITH 3-FOOT TAILBOARD DOWN

# Alley Conditions Important Factors

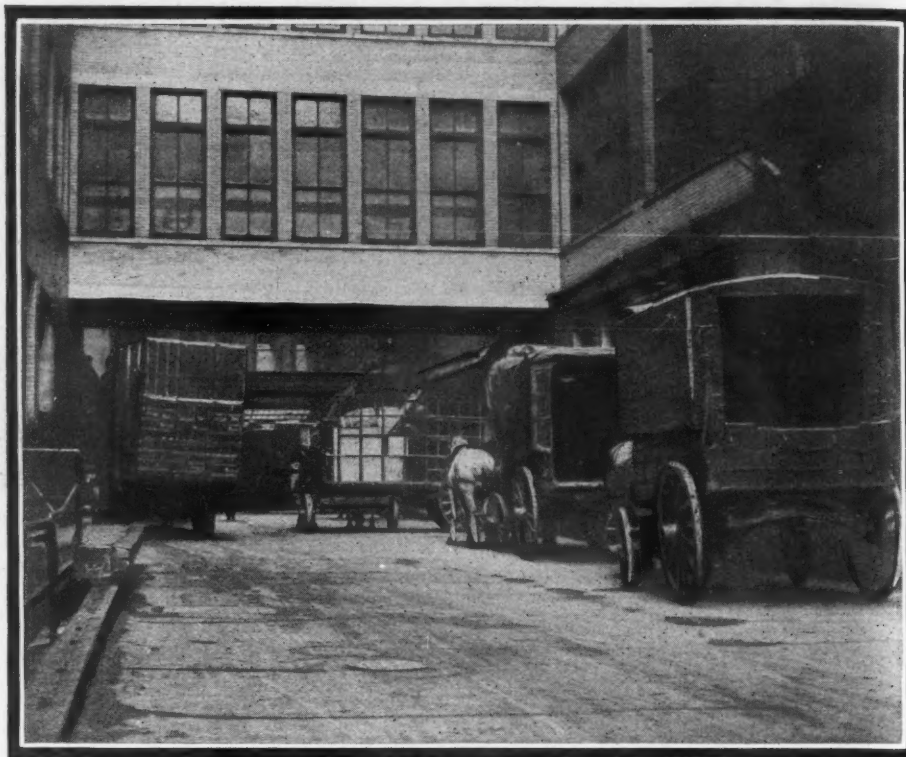
Captain Healey, in stating the advantage of the motor truck from the standpoint of space occupied, also mentioned the fact and advantage of the motor vehicle being able to travel 75 per cent faster than the horse vehicle so that blockade conditions were much easier remedied and traffic at corners much easier handled. One mistake which is made in our cities is in the matter of controlling those on foot who very often interfere with and sometimes completely block the traffic of vehicles at street corners.

## London Example Cited

It is a common sight in London to see the motor omnibuses and taxicabs making a speed of between 15 and 20 miles an hour on main thoroughfares in the heart of the city, this being accomplished there with safety for several reasons. In the first place, the street traffic is handled in very strict fashion and any vehicle turning to the wrong side of the street for no matter what excuse is quickly brought to time. Slow traffic is made to keep to the curb, leaving room for the faster traffic near the middle of the road so that in some thoroughfares it almost amounts to a separate road for horse traffic toward the curb while the motor vehicles are left their space towards the center. Secondly, the foot traffic is so controlled that the drivers have but little to watch out for between crossings and there, as here, they watch the police for orders and woe be unto the driver who neglects the sight of the raised hand. If a person is struck by a motor car or truck between streets the burden of proof is with the pedestrian. The fact of the steering wheel of a foreign car being as it is, is a great advantage, especially in England for the driver from his seat has a clear view of the front wheel hub as it passes other vehicles on the same side on which he sits enabling him to steer closer, taking up less room in the street and make better speed. Motor omnibuses rarely clear the hubs of passing vehicles in crowded districts by more than 6 inches.

If it were made necessary at crowded points for pedestrians to observe the whistle of the policeman with the same respect compelled for vehicle traffic much would be accomplished toward a greater speed in the downtown districts of our large cities, especially if it were supplemented by a rule compelling pedestrians to cross streets only at the regular corner crossings so that between streets drivers would not have to pay attention to anything but vehicle traffic.

Considerable of saving can also be made by enforcing certain delivery, such as coal and water and the collection of waste paper to be made at night, thus taking a large number of wagons off the streets at times when space is valuable. It would



MODERN METHODS ILLUSTRATED

Scene in Marshall Field's alley, Chicago, with motor truck loaded with trunks carrying merchandise going to sub-stations, in background

## In Big Cities Like Chicago System Is Necessary in Order That Motor Trucks Can Do Most Effective Work —Receiving Clerks Suggested as a Time-Saving Proposition

seem practical for some of the department store deliveries to be made, also to their sub-stations during the same period.

The matter of road surface has considerable to do with the rapid movement of traffic and increasingly so as the motor vehicles come into more common use. While the rough cobblestone pavement, full of chuck holes and mud may do for a slow lumbering horse traffic, it never will do as a business proposition for our new method of good transportation, where minutes saved per day means thousands of dollars saved during a year. When the use of the motor truck becomes universal the noise of rumbling wheels will be conspicuous by its absence.

Summing up all these conditions it is easy to forecast in a general way the more important things which the use of the motor delivery vehicle will eventually bring about in the process and as part of its evolution and general adoption for all classes of transportation work. It is by no means impossible according to figures that are already at hand that in the end the unit system of passenger transportation by motor buses will take the place of the slower and noisier street car.

CHICAGO alleys are far from ideal for motor truck delivery service, while with the present horse vehicles there is a vast amount of congestion and delay which could be very well done away with by a little effort on the part of the authorities and those interested in bringing the day nearer when motor delivery wagons and trucks can be made paying propositions in every line of delivery service. Little effort has been spent on the alley problem in the past and buildings have been put up with little thought of what the effect of their construction and arrangement would be on the traffic at the rear of the stores, but with an appreciation of the conditions, brought about by a study of some concrete examples of alley problems will come new interest and a demand for a change looking toward greater delivery efficiency in all lines.

Situated in the heart of the loop district of Chicago, conditions in the alley at the rear of the Carson-Pirie-Scott Co. probably are as typical of alley traffic as at any other such point in the loop. Though it has some problems peculiar to this one alley, yet each instance points out none the less lines along which alley con-



gestion could be helped in other sections as well.

In putting up their buildings the company allowed for an alleyway sufficient to handle its traffic. The Heyworth building uses the same alley, it having been built to the line. Here for a distance of 50 feet the alley is so narrow that it is impossible for two teams to pass, so that if one team is standing in this space all traffic must wait on it before being able to get out. The same condition obtains at the other end of the alley, leaving it narrow at this end. The space between is wide enough so the teams can back up on either side with a roadway between. The general arrangement of the alley is shown in the drawing annexed.

#### Always Congestion Here

Another fault of the Heyworth building is in connection with its loading and unloading facilities, as mentioned in another article. Here is a case of a nineteen-story building with hundreds of offices, having a platform for the delivery of goods which will accommodate only two teams at once. To get in to the platform they must back up in the narrow part of the alley and, once in, the horses projecting out into this narrow space barely leave room for a team to get through as in the drawing.

Since the unloading space is so small both spaces at this platform are always occupied. The platform itself is nearly half of it taken up by a great waste paper and refuse box, generally in an unsightly condition, which impedes loading and unloading of vehicles at the platform. Leaving a package of goods at this building the driver first must take his place in the line of waiting vehicles which is generally present, then as the opportunity offers back through the narrow space and into position at the platform. Entering the building the driver waits for the slow freight elevator which does not run during the noon hour and mounts on it to the

floor to which his delivery is to be made. Here he receives his O. K. on the shipment and returning brings up the box or whatever his load may be by the elevator, again awaiting his turn. Whether this be the order of the service or not, the drivers generally make two trips into the building for a single delivery. The quickest delivery made on the morning of the observation was that of a small package easily carried in the hand, which was delivered in 7 minutes from the time the wagon backed up to the platform, this backing up and getting away occupying 4 minutes more.

In the case of larger packages too big to carry around for any great distance it took the wagon of a certain express company on a recent morning 35 minutes to deliver three boxes to their destination after backing up to the platform. Much of the alley congestion at this point is due to the lack of receiving facilities in this building and the method of overcoming the difficulty in this case points out to a very general remedy for similar conditions in many other places in the loop and outside of it.

#### Need of Receiving Clerks

If the building were to furnish a receiving clerk at the entry platform with power to receipt for so many packages for anyone in the building without being held in any way responsible for their contents, wagons could make delivery in 2 and 3 minutes where now they are taking from 20 to 40, and the present platform would, in most cases, be amply sufficient for the traffic without holding up wagons going to other buildings in the same alley.

One of the greatest drawbacks in the matter of time delay at this point is during the period when the paper-man makes his rounds of the building and the water delivery is made. The paper-man spends an average of 2 hours in making his rounds, the water man an hour and a half,

and very often they both occupy the receiving platform at the same time, thus holding up all traffic into the building for this period. Undoubtedly some system could be arranged to eliminate this period of idleness, which system, together with the receiving-clerk idea in operation, would practically eliminate the trouble at this point in the alley.

Another peculiar circumstance, which obtains in this and other alleys is in the matter of the express companies' wagons. Between 2:30 and 3 o'clock in the afternoon there arrive here wagons of the American Express Co., United States Express Co., Adams Express Co., Northern Express Co., Pacific Express Co. and others, these proceeding to back up into any available space which may be had, often to one of these platforms with inadequate facilities. Here they stand, some of them, until close to 6 o'clock, few of them under an hour, while their drivers make the rounds of the neighboring buildings in line with their business. When their load is collected from various sources in this scattered and inefficient way they move out and leave room for other traffic and not before.

This condition also could be alleviated by the platform-clerk idea for the same man who is authorized to receive and receipt for packages could be given charge of all out-going packages from the same building, so that any express parcels from anyone in the building could be sent down to him from their respective offices of the senders, it being within the province of the clerk to see that each package was shipped by its proper route and company. This would save the express drivers their tedious rounds while the alley is congested with from six to twelve teams standing idle at a loss to the companies owning them.

#### Deductions Are Made

Let us suppose a motor truck were used in the ordinary routine of package delivery in an alley of this kind which is quite typical of other loop alleys in the city, though much better in many ways than the average. If a truck has to spend 25 or 30 minutes in making each package delivery its efficiency is so limited that there is no profit in its use over that of a horse-drawn vehicle. If all express collections demand a wait of 2 or 3 hours while the driver makes his rounds of adjacent buildings, taking into account also the delays which he will make in delivering the comparatively small packages of his trade, there is small possibility of a motor vehicle making as good a financial showing as a horse wagon.

It would seem, therefore, from this much observation that the successful use of motor vehicles for such service in the loop as has been touched upon in this article depends very largely upon what increased facilities can be devised and systems adopted for quick receiving and shipment or loading of whatever packages



ALLEY CONGESTION FOUND IN REAR OF ASTOR HOTEL, CHICAGO



HOW SHORTER TURNING RADIUS WOULD INCREASE EFFICIENCY OF MOTOR TRUCK

are being handled in the motor trucks.

The Carson-Pirie-Scott Co. has a receiving clerk at its platform and here it is a rare thing to see a wagon or truck stop for a greater length of time than 10 minutes to make any ordinary delivery, although this much time is sometimes consumed in getting into position on account of congestion at the Heyworth corner. If every platform were handled as efficiently as Carson-Pirie's, motor vehicles could be made to pay in delivery service in this alley as well as in other localities, and until these congested conditions are remedied there is little use in trying to adopt the truck or motor delivery wagon for this service.

In the matter of alley congestion with horse vehicles a large percentage of the

delay is due to lack of co-operation among the drivers, this being supplemented in most cases by inadequate handling facilities. A couple of chance observations on alley congestion opens up a line of reasoning in regard to the condition which may lead to some suggested solutions, these instances differing from the Carson-Pirie alley problems in a number of points, the traffic, too, by horse vehicle.

#### Alley Conditions Noted

The conditions shown in Fig. 4 were observed in the alley connecting State and Dearborn streets, between Washington and Randolph streets, in Chicago, on December 28th. Fourteen wagons in all were standing in this alley. More than half of these were being held up by a wagon of the Lawrence Ice Cream Co.,

which had stopped in the center of the alley while the driver was in a neighboring building, evidently getting receipt for deliveries. The coal wagon shown at one side did not seem to be at fault, for its presence in that location was demanded by the coal window to which it was delivering. The grocery wagons also were located as their business facilities demanded, but the combination of these three units of coal, ice cream and groceries held up all traffic through the alley.

The ice cream wagon stood in the same location from 10:05 to 10:14, meaning a delay of 9 minutes. It then took 2 minutes to get out of the alley, being partially held up in turn by two delivery wagons backed up to a platform further on as shown, with paper wagon opposite, the

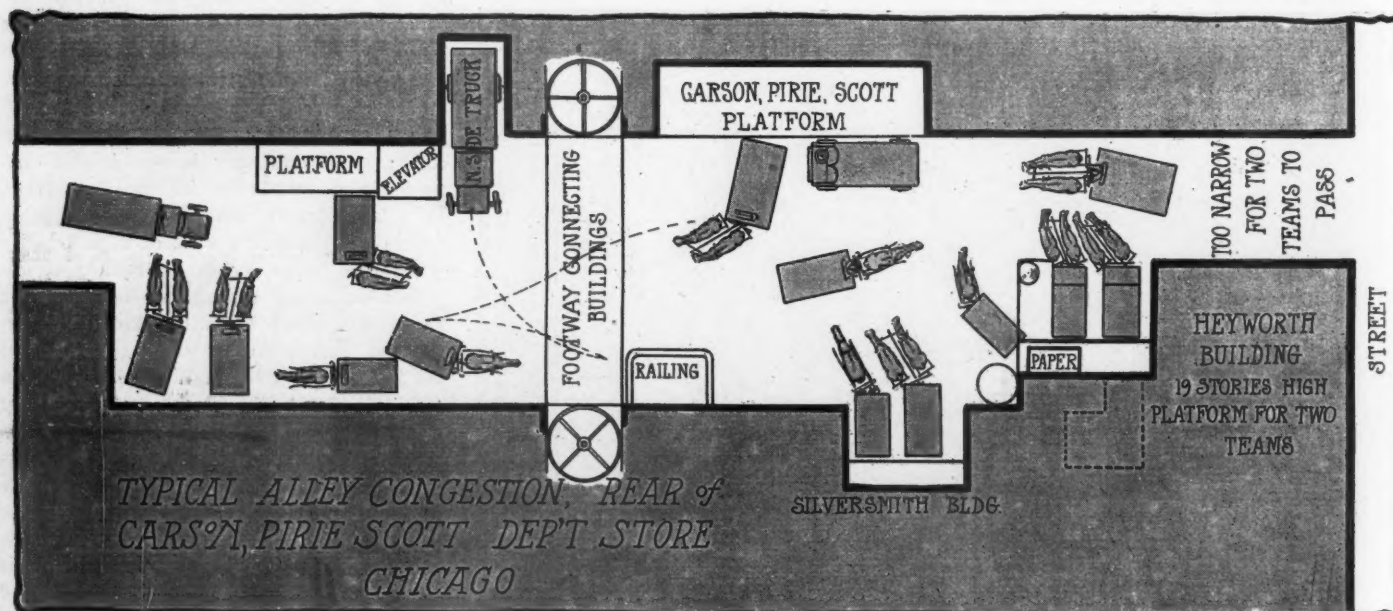


FIG. 3—DIAGRAM ILLUSTRATING ALLEY CONGESTION EASILY BETTERED BY HAVING RECEIVING CLERK FOR GOODS



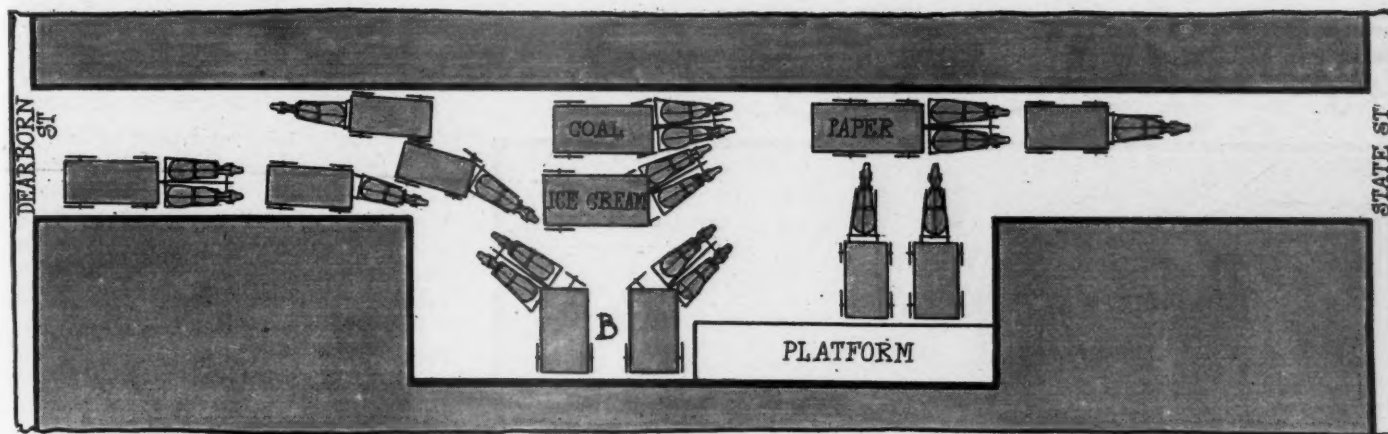


FIG. 4—TYPICAL ALLEY CONGESTION THAT COULD BE EASILY REMEDIED

driver for the ice cream company having to persuade the other drivers to swing their horses before he could get through. As soon as the ice cream wagon moved away the traffic was resumed through the alley. During the idle period of the ice cream wagon and the blocking of the alley, the vehicle was left alone for the space of 7 minutes.

This fault as noted probably was not so much the failing of this one driver, who is only one of many, but indicates a lack of co-operation amongst the users of these narrow inter-streets of our congested business districts. There was other space in the alley where this wagon could have stood without blocking traffic and without hindering the efficiency of its delivery, yet there seemed to be no hurry to get out of the other fellow's way; indeed, the other drivers did not seem to be especially disturbed by the condition, probably being used to it. With the horse vehicle the delay of 9 minutes probably never was heard of by any of the firms whose wagons were held up in the alley. Since the condition is there and always has been there, the incident was not of enough import to

make any impression on any concern, but if any of the vehicles delayed had been motor vehicles, say a coal truck with a dumping body, this 9 minutes would have been a loss equivalent to the entire unloading time of a 7-ton coal truck, or a run of a mile and a half through congested territory.

Another observation was made in the alley back of the Boston store in Chicago on the same day as the above incident took place. At 10:17 a four-horse team arrived at the entrance to the alley and took up its place at the end of a row of vehicles on the right hand side, blocked just inside the entrance to the alley, Fig. 5. After a 5-minute wait a load of bricks passed the line of waiting vehicles on the wrong side, cutting in ahead of the whole row with no reference to precedent in the matter of arriving time. This may have been according to a special rule on account of construction work going on in the Boston store. It was 17 minutes before the four-horse team could move into place and get an opening to go on to its loading platform, after which it took 5 minutes in turning and backing in, this being due.

in a large measure, to the poor alley surface.

That drivers do not count time lost as of especial value was evidenced by an incident which occurred when at 10:19 a mule team arrived, the very team in fact which had cut in ahead of the four-horse wagon. At this particular time the alley was fairly well blocked except at the spot where the brick was being unloaded at the Boston platform as indicated in the drawing. As soon as the teams started to back in, the mules, slipping on the bad surface, became stubborn and instead of backing started out of the alley. Twice the driver, by exerting all of his strength on the reins, started them backing again, but the third time they went on out of the alley as though there was nothing to hinder, load and all; necessitating an entire new entry into the alley.

The 3½-ton load was unloaded from the 4-horse wagon in 26 minutes, it being a bulk load mostly of boxes and unloaded by two men with hand trucks, this giving a fair basis of the time which would be taken in unloading a motor truck of similar capacity by these methods.

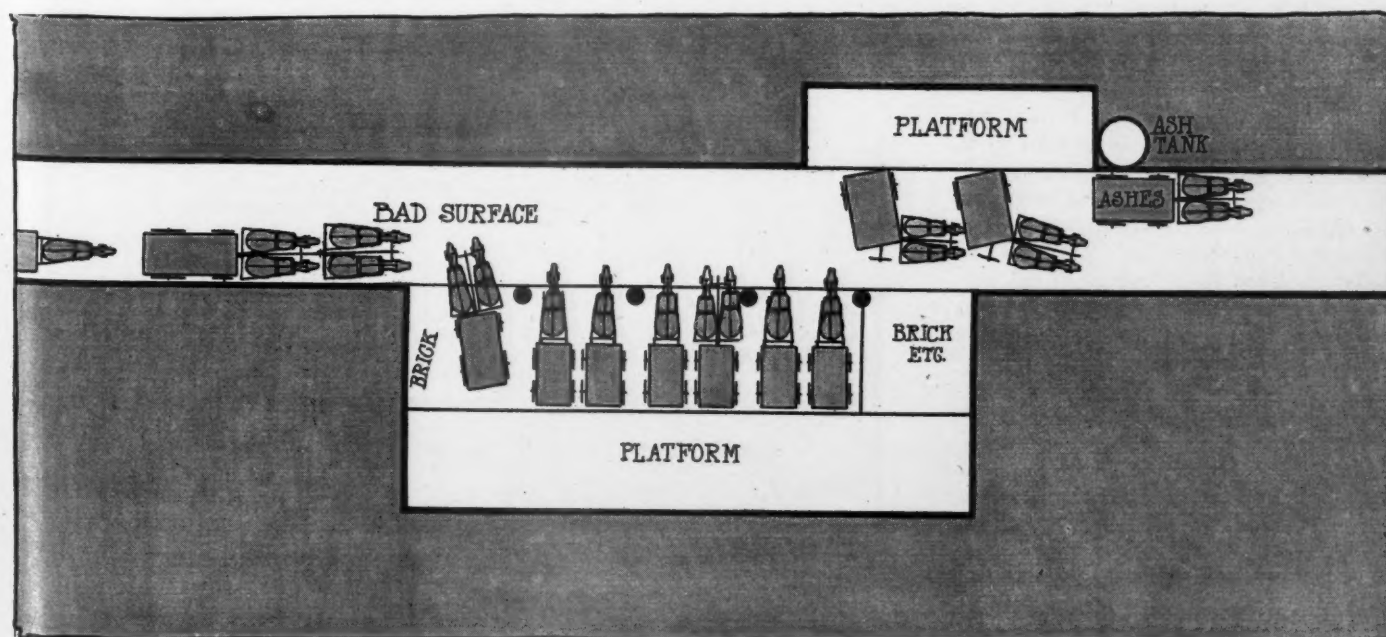


FIG. 5—ALLEY CONGESTION IN REAR OF BOSTON STORE: FOUR-HORSE TEAM HELD UP 17 MINUTES

# Systems Used by Department Stores



CHICAGO DEPARTMENT STORE BUSES

## Chicago's Mercantile Houses Using the Power Wagon — Each Concern Has Devised Time-Saving Methods Which Bring Out Efficiency of Commercial Motor Vehicles

OF all the motor trucks in Chicago the largest number is used by the department stores there being eighty-eight trucks employed in this class of delivery work alone in the Windy City, not counting the smaller motor delivery wagons. The class of work required in department store delivery in our large cities brings up a number of problems in connection with the use of trucks not present in any other class of delivery service.

Through the value of increased speed in delivery, the department stores were among the first in business to take up the use of the motor truck as a delivery unit and have had a great deal of experience which is valuable. Starting when trucks were far from what they are now they have developed their systems as the truck has developed and have in turn taught much to the manufacturers as to just what was demanded of a truck in city service, lessons which have been a distinct benefit to users of trucks.

Among these firms, those in Chicago have done their share and have developed many points of truck service in ways that fit their needs. While these systems fit no other line of business, yet the lessons learned are none the less valuable to other lines in suggesting lines of thought which can be followed out in fitting trucks to other lines of work.

In department store work the sched-

ule of delivery is all important and the mere fact of truck service costing more than horse vehicles in their delivery work, as it necessarily must under the conditions, does not detract from the value of the motor truck as an adjunct to department store work. These points can be best brought out by concrete illustrations, the method used by the Fair of Chi-

cago probably being as typical as any.

Geographical reasons divide the Fair's delivery area into three sections, each of these sections having a central sub-station from which run horse vehicles to deliver the packages to that section. To each of these sub-stations runs a truck from the main store as a feeder, the truck being unloaded at the sub-station, the bundles classified as to the delivery routes from this station and a house-to-house delivery made by horse vehicle.

### System Used by the Fair

The Fair's north side station is located at Irving Park boulevard and Forty-sixth street, the other stations being at Forty-sixth and Madison for west side delivery, and Seventy-first and Wabash for the south side. The trips a day are made to these stations by trucks leaving the store at 2 and 7 p. m. on week days, excepting Saturday when three deliveries are made at 2, 5 and 7 p. m. It is the requirement of schedule which limits the work of the truck in the case of a department store. It would not do to give one section of the city an earlier delivery than another, so to handle the work all trucks must leave the store at the same time. If it were not for this, half the number of trucks could do the work since now they work at a small percentage of their time.

### Loading the Trucks

The cars are loaded by means of an escalator, or moving inclined platform, to the sidewalk which brings up small hand trucks to the sidewalk these being wheeled to the motor vehicles and unloaded by hand, the bundles being merely tossed into the body of the truck. A sorter in the shipping room has marked on the sales slip of each package the num-

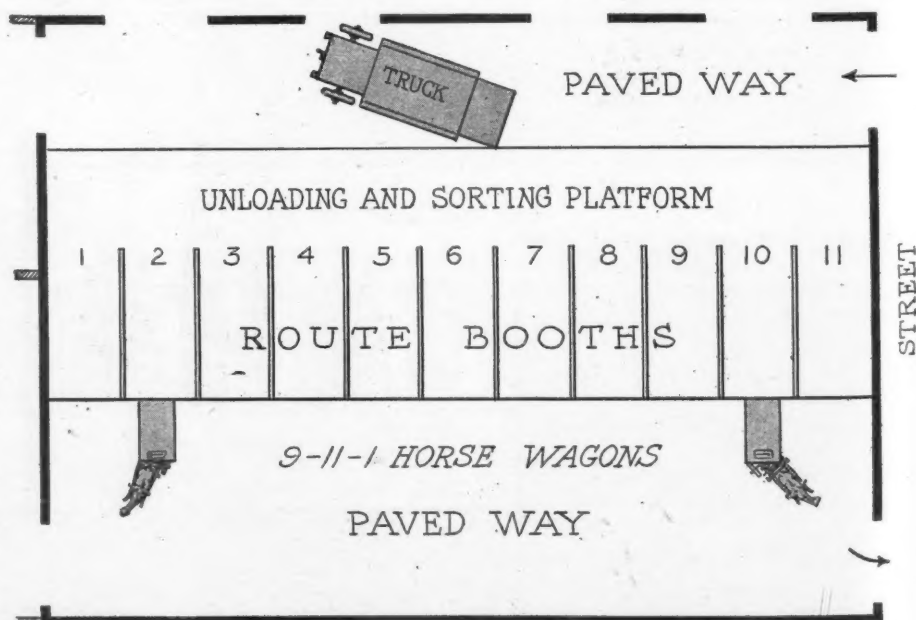


FIG. 6—FAIR SYSTEM AT SUB-STATIONS

The diagram herewith shows how big truck is unloaded and resorted for horse delivery from the department store's sub-station



ber of the route on which it belongs. Two porters are used to each car in loading.

The following is an average trip of the north side truck to the sub-station:—

Leave store at 2:10 p. m., driving through traffic with but two stops for traffic at street corners and one on account of a street car in a 6-mile run to the sub-station north. Load, 4 tons; time of run, 45 minutes. Arrive at station at 2:55 and drive directly in through a large door as at A in Fig. 6, the truck backing up to a platform at the side as shown in the sketch. Unloading is accomplished mostly by boys, but assisted by the drivers of the route wagon which are backed up to the platform on the opposite side. Twenty-five porters in all are employed. Time of unloading and sorting, 22 minutes. As the boys unload, each package is thrown into the booth or stall on the platform corresponding to the number on the sales slip. While the unloading is going on the car is filled with gasoline and oil. The location of the horse wagons is shown.

Each driver with the assistance of a boy sorts his route booth until the packages are in the right order for his delivery route, when he loads the one-horse wagon accordingly and in 15 minutes from the time the truck is unloaded is away with his goods. Eleven horse-wagons are used in this sub-station. Here also is housed a Packard truck which makes a trip to Highland Park every day.

All of the delivery work of the Fair is handled by its own teams. One trip a day is made as far as Waukegan, a distance of about 40 miles, including the towns between there and Chicago, west as far as Wheaton, southwest to Downer's Grove, and south to One Hundred and Thirty-fifth street. This necessitates the location of so-called country barns at La Grange, Elmhurst and Highland Park. Lately four electric trucks of 1-ton capacity have been put into service for regular package delivery. These trucks take the place of six two-horse teams, a wagon having four horses allotted to it, each team working a half a day at a time. Thus the electric trucks are taking the place of six two-horse wagons and twenty-four horses, while they are at the same time making three trips a day instead of two as was accomplished by the horse service. They cover one and one-half times the territory covered before by wagon. Two of them deliver from North avenue to Diversey and the other two at Hyde Park, from Thirty-fifth to Fifty-fifth, and between Cottage Grove avenue and Lake.

#### Fair's Charging Plant

The Fair furnishes the current for storing the batteries from its own power plant at very small cost and, although the electric delivery wagon is limited as a general supposition by the charge of its batteries yet these trucks are making 45 miles a day in service and making an average of 250 stops, a record equal to any other

form of truck of this size known to the writer.

M. R. Kirby, superintendent of delivery at the Fair, considers a great deal of the success of these vehicles due to the fact that the former horse drivers, who were thoroughly familiar with the route, were broken in as drivers instead of hiring professional chauffeurs who as a rule have, in his opinion, but little knowledge to start with outside of the car itself.

#### Drivers Make Road Repairs

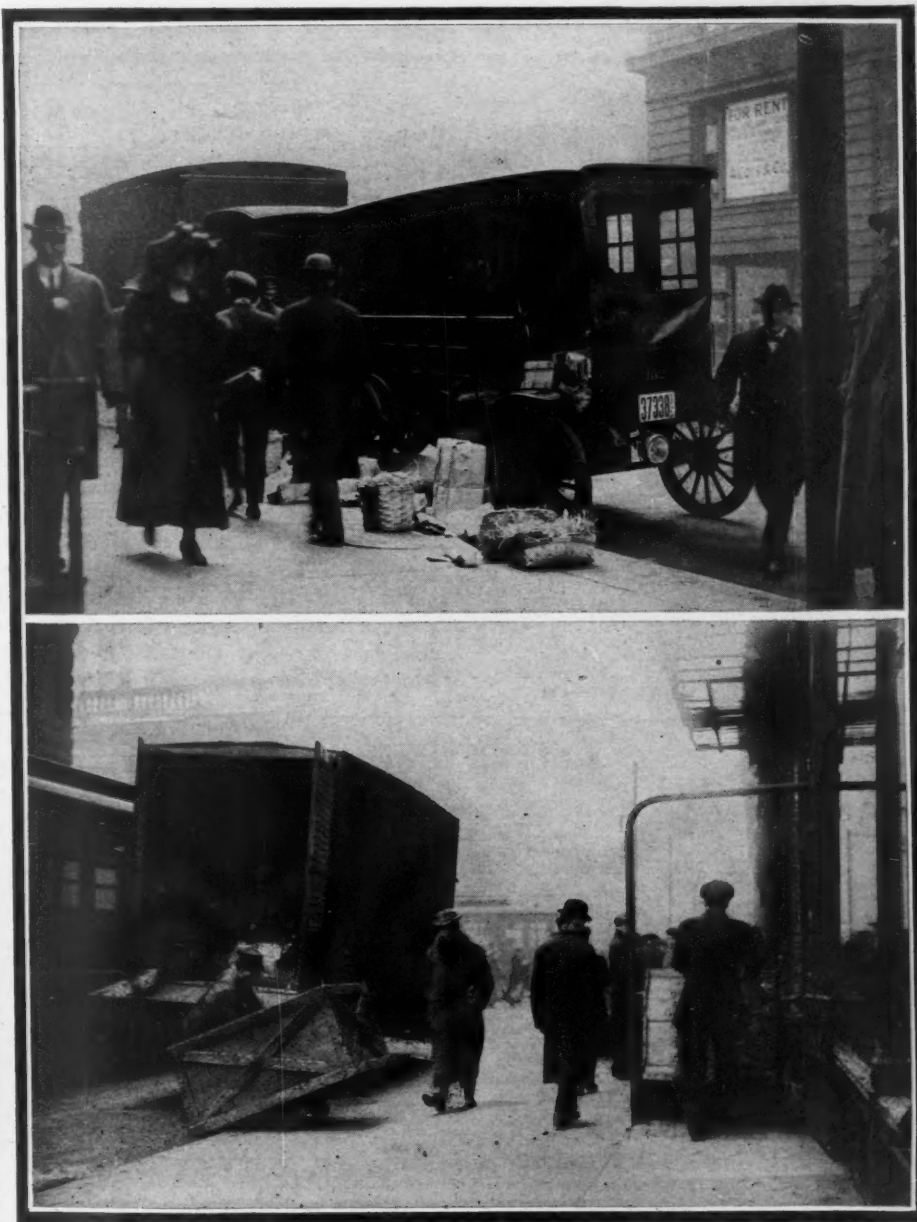
An accurate account is kept of costs in connection with the use of motor trucks. In the first place books are kept on the consumption of gasoline and oil each day, the cars being listed on the books by number. From this a monthly report is compiled, to which is added also the reports of repairs, accidents, tire expense, interest on investment, depreciation, etc., so that each month it is known exactly just what the delivery system is accom-

plishing and at what cost, what driver is doing the most careful work and showing the greatest efficiency, and in fact nearly every important point of the service is carefully tabulated and filed.

Each driver is supposed to make all of the road repairs which may be necessary and that come with the range of his ability, and each night when he brings the car into the garage must turn in a report slip as shown in a separate column, Fig. 8. A glance at this shows the night garage man just what there is on the machine which needs tuning up, so that he knows just what work is laid out for him. In this way the cars are kept in good shape without wasting time, while one extra truck is kept on hand for emergency and for use during the overhauling of any of the other machines.

#### System Used by the Fair

Each truck is listed at the top of the vertical column of the monthly report by



FAIR TRUCKS LOADING AT SIDEWALK

Sidewalk loading in Chicago obstructs foot traffic. Note hand truck and porter coming up moving stair at right. The hand truck at left is loading motor wagon



SIDEWALK LOADING AT BOSTON STORE

This illustration shows the store elevator from the sub-basement. A porter is unloading a hand truck and the driver is receiving the packages

number and the items to the left charged against it as per the daily consumption form.

"It takes a Philadelphia lawyer to figure all this out," said Mr. Kirby, "but when it is finished we know just what our truck service is costing, and how to size up our delivery situation. I like the system very much."

Figuring on the time spent in the case of the north-side truck in the trip before described throws an interesting side light on what it costs in its truck service alone to keep this delivery schedule:

**THE FAIR**  
North Side Truck  
Time

Left 2 p. m. ....  
Arrived north side station 2:45 ..... 45 min.  
Unloading truck ... 22 min.  
Loading horse teams. Taking on fuel, etc. .... 15 min.  
Truck return to store ..... 45 min.  
Time of run ..... 127 min. or 2 hrs. 7 min.

Next trip 7 p. m. ....  
Idle time and loading ..... 2 hrs. 54 min.  
Loading, approximately ..... 40 min.

Idle time each trip ..... 2 hrs. 14 min.  
Only two trips a day made except Saturday, so complete time of use of truck per day is:  
5 days ..... 20 hrs. 10 min.  
Saturday, three trips ..... 6 hrs. 31 min.

Time in use per week ..... 27 hrs. 31 min.  
Time available per week, 8 hour day ..... 48 hrs.

Lost time ..... 20 hrs. 29 min.  
Forty-two per cent of time lost per week.

Here is a showing of 42 per cent of the possibly running time of the truck lost each week, and this is the case with practically every Chicago department store, as the systems in one store or another seem to line up about the same. All delivery superintendents seem to agree that if it were not necessary to make delivery to all parts of the city simultaneously half the number of trucks they now use could very easily handle the amount of delivery work which they have. Since the truck is idle

so much of its time anyway, there seems to be no especial effort on the part of the department stores to devise any quick loading or unloading schemes.

#### Location of Sub-Stations

The Fair store uses in all twenty-one gasoline trucks and five electric trucks, the machines averaging 41 miles a day.

It is interesting to note how nearly the location of the sub-stations of the Chicago department stores coincide. The Boston store whose conditions of delivery are much the same as with the Fair, only with less of bulk goods, such as furniture, hardware, groceries, etc., has three sub-stations located at Forty-sixth and Madison, west; Clark and Ainslie, north, and Forty-third and Vernon, south. This last named point is too near to the store so that a new station is being arranged for at Sixty-third and State. All of the department stores seem to depend upon a run of from 6 to 7 miles to each sub-station. The stations for the Boston store are found very close to those of the Fair and other department stores if not in the same block.

#### Work at Boston Sub-Stations

The amount of goods handled by these sub-stations can be very well gathered from the fact, that at the west side barn 15,000 packages were handled during Christmas week last, while the north and south sub-stations handled no fewer than 17,000 each. Each truck now used is taking the place of four horses and two men, the cars leaving the main store at 2 and 5:30 p. m. Two hours are allowed for loading at the store, this being done from the sidewalk in much the same manner as at the Fair before described, only that an elevator is used to raise the goods to the sidewalk from the second sub-basement instead of the inclined platform or escalator at the Fair. The great difference in the sizes of packages seems to preclude the idea of crate delivery by this firm. As with the Fair the sales slips are marked with the route number before loading on the wagon, this marking being handled by one man who marks 17,000 packages a week and in case of rush could mark 20,000 without trouble; cost, \$15 per week. A conveyor system is used in the basement of the store which delivers the wrapped goods to the proper section of the basement floor for its proper delivery at noon. Suburban delivery goes as far as Hammond on the south, Waukegan on the north, and west to West Chicago. A truck is kept at each sub-station for heavy work, these being 1-ton Grabowsky power wagons. The daily trip made by these trucks averages from 50 to 85 miles.

The package delivery nearer to the store is handled by two electric 2,500-pound trucks. One covers from Thirty-ninth to Fifty-fifth street, and from Michigan to St. Lawrence, while the other covers the same width of territory from St. Lawrence to the lake. Each trip occu-

THE FAIR			
AUTO NO. 10		DATE Feb. 1 12	
DRIVER John Doe		STOCK CARD	
QUANTITY	ARTICLE	ARTICLE	
		EACH	TOTAL
800	Pkgs	—	800
O. K. _____		SIGNED _____	

FIG. 6—STOCK CARD USED IN THE FAIR SYSTEM



pies a space of 4 hours, making two trips a day and three on Saturday, the average run being 35 miles and with a delivery of 225 packages a day. Near deliveries are handled by a number of single horse wagons.

#### Carson-Pirie System

Some of the problems of Carson, Pirie, Scott & Co. in connection with delivery are handled in the article on alley congestion, the drawing, Fig. 3, in connection showing the location of their loading platform and how the traffic at that point is moved. A policeman is stationed in this alley by the firm itself whose business it is to keep traffic moving as far as possible and prevent delay, a special precedent being given to the motor truck. On the account of the narrowness of the alley trucks have been chosen by the firm which have a short turning radius and a short wheel-base, this only indicating one of the conditions which should be taken into account when designing a truck for city use.

#### Loading in the Alley

In the case of the south-side truck, for instance, drawing Fig. 3 shows how this backs into a recess on the west side of the alley for loading and unloading. When leaving with this truck there is no possibility of turning quickly enough to miss hitting the railing, on the opposite side of the alley. This necessitates backing around, and making a fresh start before the truck is really on its way out of the alley, as shown by the dotted lines, all this turning occupying a great deal of space which must be cleared of teams by the alley policeman before the truck is able to get out. A horse team under similar conditions could turn in its own length, pivoting, in fact, upon the rear wheels.

The class of goods delivered by Carson-Pirie trucks admits of the use of a trunk system of delivery, these trunks being numbered for each separate route so that at the sub-station each driver merely picks out his trunk or trunks and has his load at once. A trip of the north-side truck of this firm shows a good comparison with the similar run of the Fair.

Trucks make two trips a day, one at 7



LOADING SYSTEM AT MANDEL BROTHERS

One of the delivery trunks is seen at the foot of the stairway, a hand truck at the right, and the elevator under the stairs. The sidewalk during loading hours is much obstructed

in the morning and the other at 2:30 in the afternoon. The north side truck makes a 26-mile round trip twice a day with an average 3-ton load. On the day in question the truck left the store exactly on time and with no delay in the alley, this largely on account of the light traffic just after Christmas. Two minutes time was lost at the Rush street bridge through heavy traffic and sharp corners. Only one other stop was caused during the run to the north side station and this by a street car. The north station is located at the corner of Wilson and Ravenswood avenues, where the truck arrived just 36 minutes from the time of leaving the store. For this near station canvas trunks were used, these being dumped out on the sidewalk, together with a number of bulk packages too large to fit into the trunk, the driver helping in the unloading. Two hand trucks were used to carry the trunks in. This sub-station was equipped with horse and wagon for further delivery. It took but 2 minutes to unload the crates which were

three-quarters of the load and 2 minutes for the loose bundles, the engine being left running meanwhile. Half of the entire load was unloaded at this point and yet the truck was away again in 4 minutes after its arrival, traveling further north to the Evanston sub-station, corner of Davis and Benson. The running time to this station from the store including the stops at the Wilson avenue sub-station was 1 hour 8 minutes, a distance of 13 miles.

#### Trunk Delivery System

The remaining trunks on the truck were of steel and as the machine backed up to the sidewalk a mattress was placed on the walk on which the steel trunks were dropped, being wheeled in from the sidewalk on small hand trucks. Time of unloading six trunks and thirty bulk packages, 2 minutes. Each driver selected his own trunk for his route and opening it arranged the packages according to his own system of delivery, most of the smaller bundles being little square pasteboard

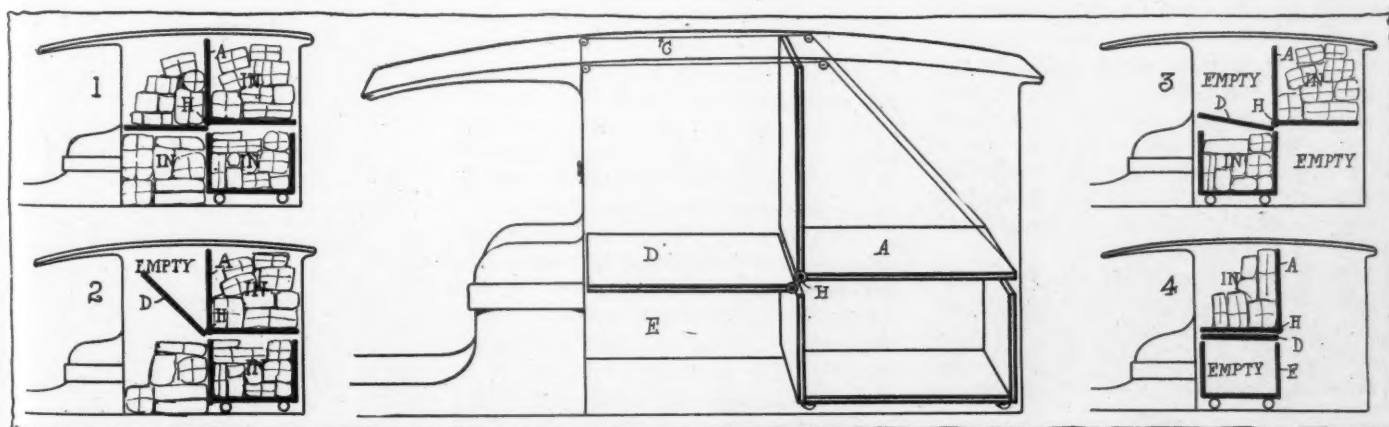


FIG. 7—SPECIAL BODY ARRANGEMENT ON HUB TRUCKS

By its use the driver can reach any package from the seat, moving package units forward as first deliveries are made. This is an idea that was evolved by the Hub's superintendent of delivery

boxes which fit snugly into the trunk, occupying little space and being easy to handle. No horse vehicles are used from this station, all the delivery being hauled by five 1-ton electric trucks each with a driver and a boy helper. In 13 minutes the electric trucks were away loaded with merchandise.

Comparing this with the 37 minutes required by the Fair system the trucks show a saving of 24 minutes, although the class of goods handled was somewhat different. There are reasons why the Fair cannot use this same system. Seventeen minutes after the arrival at the Evanston station the big truck was away for the main station with two electrics fully loaded preceding it.

#### The Hub System

Most of the men's furnishing companies in Chicago have their delivery work done by contract teaming. A notable exception to this is the system employed by the Hub, using in its delivery service six White 1-ton trucks and one Packard. These machines do the work of ten teams and at the same time cover more territory. Two extra deliveries also are made to the extreme north and south whereas with horse methods they made but one delivery a day. On these cars pneumatic tires are used but are filled with tire-filler. The machines were put into service on July 22, and the service has continued so far without interruption with the exception of the delay of one car caused by cold weather carburetion difficulty. Most of the packages delivered in this service are comparatively small and the loads light.

#### Service Sheet Reports

In connection with the service, drivers furnish a daily report sheet on the performance of the car with the consumption of gasoline and oil, Fig. 8, and also a monthly report, Fig. 9, summing up the results of the daily report. In the month of December, 1911, the Packard car covered 262 miles at a cost of \$200 in round numbers, averaging 6 miles to the gallon of gasoline. A bonus is given to the driver who has the best record each month in the matter of gasoline and oil consumption, repairs, accidents, etc. At night the card is turned in to the garage foreman indicating anything that may be wrong with the car, the foreman attends to the repair at night and makes note of it on the back of the card, with his opinion as to the cause of the trouble, whether due to mechanical difficulties, defective driving or neglect, etc. On Sundays the drivers inspect their cars for any special trouble.

Each machine averages about 65 miles per day, with the delivery of seventy-five packages, this including the suburban service, on which routes the stops are fewer in comparison with the mileage.

THE FAIR	
AUTO NO.	7
DATE	Feb 1
DRIVER	John Doe
1	MOTOR
2	CARBURETER
3	IGNITION
4	WATER SYSTEM
5	LUBRICATION
6	STEERING GEAR
7	CLUTCH <i>Slipping</i>
8	CLUTCH BRAKE
9	CLUTCH INTERLOCK
10	UNIVERSAL
11	TRANSMISSION
12	COUNTERSHAFT BEARINGS
13	COUNTERSHAFT BRAKES
14	SPROCKETS
15	CHAINS <i>Loose</i>
16	RADIUS RODS
17	EMERGENCY BRAKES
18	SPRINGS
19	SPRING CLIPS
20	WHEELS
21	TIRES
22	GREASE CUPS
23	LAMPS AND HORN
24	BODY
25	WASHED AND CLEANED
REMARKS	
SIGNED <i>John Doe</i> Repairman	

FIG. 8—DRIVER'S DAILY REPORT CARD AS USED BY THE FAIR

The superintendent of the Hub has devised a new delivery body arrangement to fit its service and on which patents are pending. This body displays a great deal of ingenuity, the idea of its construction being to save the driver the time of getting out of the car, running around to the rear and unlocking a door before he can get at his packages. In the arrangement the Hub is using, the interior of the body is constructed as in sketch, Fig. 7. The part A is an L-shaped frame made of slates, with spaces between and hinged at H. Underneath this, at the back, is a separate box arranged so that it can slide forward when necessary. Just back of the driver's seat is a small platform D on which the bundles to be delivered first are piled, these being within reach of the driver so that he can select his packages without leaving his seat. When this compartment is empty he can reach below the platform to the packages in the space E, these two compartments generally holding all of the "out" deliveries.

When these are empty the driver pulls the box forward, thus bringing all the packages which are in it to the front and within reach of the driver. This empty, the L-shaped frame is tipped forward as in Fig. 7 at 4.

By this arrangement, although the body is full at the start, the packages within it are always within reach of the driver and the door at the rear can remain locked

during the whole trip. By actual test, the Hub finds there is a saving of 1 minute at a minimum for each delivery made, this even in their case amounting to a saving of 75 minutes a day for each vehicle. This makes a saving in all of 8 hours 45 minutes per day for the aggregate of seven machines, the time of an extra man and a truck.

It is by ingenious schemes such as this fitted to different classes of delivery and every species of service that the motor truck will be made to pay its greatest dividend, and the sooner time-saving systems are devised and developed just that much quicker will the use of the motor truck become universal. This type of body will be manufactured by the McFarlane Co., of Chicago.

The Motor Transfer and Coal Co., of Chicago, though having no actual figures as to costs, is planning to fit its 5-ton motor truck with a dumping body as the result of its experience with hand loading and unloading. It takes them an average of 55 minutes to unload with two men shoveling, the actual time running from 40 to 70 minutes. Time is saved, however, on the loading end by delivering the coal to the truck through a chute from a hopper above, this loading taking not over 10 minutes.

#### Statistics About Coal Concerns

This firm does, as well, quite a bit of heavy hauling for shops and machine firms, this fact making a truck pay even under present conditions which obtain in the coal work. The trucks which the concern uses were practically constructed by the company from parts obtained from various places. One disadvantage of this has been the unnecessary delay when an important repair was needed, since extra parts could not be obtained easily from any certain factory. On a recent occasion through this cause, after a cylinder head had blown off, the machine was used for over a week running on three cylinders, to save laying it up for this time while a new cylinder was being cast and machined up to special order. Practically all of the coal hauling done by this truck is accomplished during 2 months of the year.

#### In the Hardware Field

That conditions of delivery in certain cases will have to be changed before the commercial vehicle can be used with success in their business is the experience of the Orr & Lockett Hardware Co. of Chicago.

This firm tried for its delivery work on a per-week basis a motor truck known to be among the best mechanically, but which failed to compete with the horse system by quite a margin. It was not a case, however, of the machine failing, for there was not a breakdown during the



whole 6 weeks' period of the test while the truck was run to its limit, but of the failure of truck system to fit into the present routine and conditions of hardware delivery. Although every favor and assistance was given to the motor vehicle, it failed to show any advantage financially or in service over horses; in fact, the cost of using the truck was \$3 per day more than the teams, in spite of all the favors that could be given it.

#### Delivery Example Cited

Loading and unloading was carefully gone into and taken care of in the minimum of time, but while this endeavor resulted well in the case of loading the main trouble came in the unloading. The truck left the store at 8:30 each morning with a load, returning about noon. Unloading and loading was accomplished during the driver's lunch hour, the truck leaving again at 1:30, returning between 5 and 6 p. m. Where more territory could be covered by the new vehicle by extra pushing it was allowed to do the extra work and the saving in express charges resulting therefrom was credited to it. Every load was a full load, and no deliveries were made within a 1½-mile radius, so that the truck had a good start on its way.

"Our main trouble," said Mr. Lockett, in discussing their experience, "was not with the truck, but in getting rid of our delivery after we arrived at a building.

"Just as an example, suppose we have a couple of kegs of nails to deliver and stop at a new building with the truck. First the driver must inquire whether the carpenter contractor is on the job to re-

ceive and receipt for the goods. If he is not there the driver must hunt up a telephone and 'phone the office for instructions. If he is there, the chances are that he is up on the tenth floor, or thereabouts, and the driver must hunt him up, in all probability not being allowed the use of the construction elevator and having to climb ladders and hunt about the building while his truck stands idle. Once found, the contractor is busy, of course, and in no hurry to climb down to the main floor merely to receipt for goods, so the driver must wait until he is through with the job he has at hand before he will come with him to O. K. the shipment. After once the O. K. is received, the goods must be unloaded to some special place where it will be safe. In the case of building paper or anything affected by the wet the goods must be left under cover, protected from the elements; all of this taking a great deal of time, so you see while we pushed the truck to the utmost, so far as we were concerned, yet the periods of idleness were too long to enable the vehicle to compete with horse systems.

#### Team System More Flexible

"At the same time," continued Mr. Lockett, "the use of a number of teams is more flexible as a system than the use of one or two trucks, for, delivering as we do, through contract, if four or five teams are not sufficient for our work we have but to call up the teaming company and get an extra team for a day, while at the same time having more units of delivery our routes can be more diversified and better arranged for our class of work. We gave every favor to the truck and to

those truck agents who have been in to see me since concerning the use of a truck in our business I have had but to show the figures of our present cost of horse-delivery to have them throw up their hands, so that of late I have had no trouble in this regard."

#### Reforms Are Needed

Here is a case where the truck system seems to have been tried with sincerity and intelligence, and has failed to fit into the conditions of service required. While this is true, seemingly, in the case of Orr & Lockett, that does not even imply that a truck would not be a success with the hardware business in another locality, for each firm has different problems. Yet this experience proves further that the truck itself is not the greatest factor in successful motor delivery, and also suggests a remedy to the delivery conditions mentioned by Mr. Lockett of having a receiving clerk at each new building above a certain size required by law, and empowered to receipt for incoming packages in the name of the different contractors on the job in connection with some system by which he would be held responsible only for the number of packages received, and not their contents. When a truck will merely need to stop at a building, unload its goods at a suitable platform and drive away with receipt all signed and no unnecessary delay, then will Orr & Lockett again consider the advisability of using a truck in their delivery business, and in all probability not before, thus making the selling of a truck, with these new problems, a question of modern business to fit the new systems.

#### A Colorado Guidebook

"TRAVEL is the wine of life," writes Eugene Parsons in "A Guidebook to Colorado," in which he starts the pulse afresh and arouses with even stronger fervor the ever perennial longing for a trip through the sunny land of the "Country's Playground." To those who may include it in the year's itinerary of motor trips, or make it the one objective feature of vacation time, the book will be found interesting and valuable. With a chapter devoted to each county, the brief historical sketches compress much into succinct, easily accessible form. Here and there is given the romantic or legendary interpretation of Spanish and Indian names or those graphically descriptive bestowed by early miners or pioneers. For those unacquainted with conditions and climate some practical suggestions are made regarding equipment.

Trips varying in length from a few hours to a month or more, by different modes of travel, are outlined. But most appealing are the motor trips for, as the author says, "The man of today is a pendulum between civilization and the wilderness" and what can supply equal to a motor car the comforts of civilization and at the same time enable one to hobnob



with the peaks for a distance of 1000 to 1500 miles?

Mr. Parsons tells us that in addition to what has been done, "the present plan is to spend upwards of \$10,000,000 during the next 4 years, in constructing, improving and maintaining highways in Colorado. There will be two or three main arteries of intermountain motor-touring. It is the intention to build as good mountain roads as those of France and Switzerland."

Five motor routes start from Denver. Of the proposed routes two are completed, the Circle or scenic highway and the Colorado scenic highway, and to quote from the book, "Several other Rocky Mountain highways are planned and will undoubtedly be built by 1915, when tens of thousands of motorists will make the transcontinental trip from New York via Denver to San Francisco."

Leaving Denver the motorist following the first named route will touch Walsen-

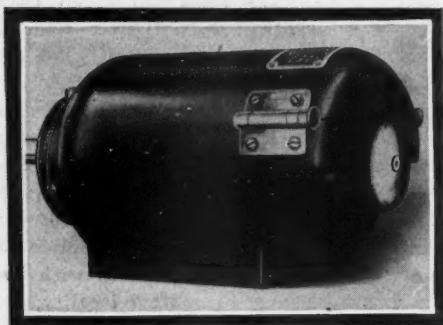
burg in the southern part of the state before turning west, and Durango before he turns north, proceeding to Grand Junction near the western boundary, thence circling eastward runs into Leadville from the north and continues southeasterly to Pueblo, thence north to Denver.

The Colorado scenic highway is a continuous circle highway, extending through the mountains and embracing the central portion of the state and thus forming a basis for connecting with and opening to travel all portions of Colorado. The distance traveled on both of these routes is from 1000 to 1500 according to the side trips taken, the time consumed 2 to 4 weeks, while the three ranges comprising the Rocky Mountains are crossed and recrossed by historic trails.

The Rainbow route, which will be opened during the present year, starts from Canon City, making a circuit of 400 miles through the heart of Colorado's scenic grandeur, and includes the Royal Gorge loop, the Sky-Line drive and the trip up Grape canon.

The book is generously illustrated, contains a number of sketch maps and has a fine route map appended. Little, Brown & Co. Price, \$1.50.

# Dynamo Lighting Systems for Motor Cars



APLCO GENERATOR

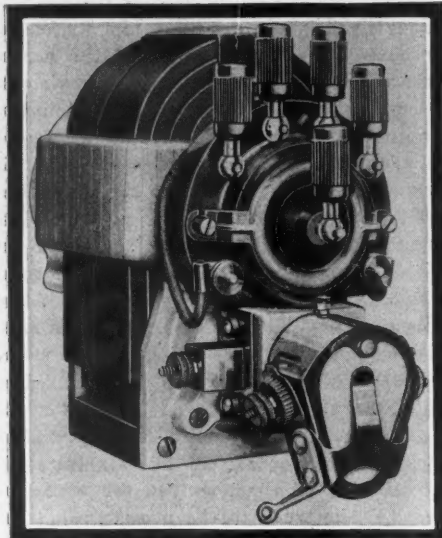
**T**HERE has been a very rapid development in electric lighting systems during the past 3 years, a development which has reached its maximum rate within the last few months. Last year was a season which was remarkable in its demand for comfort and convenience in motoring and one of the primal phases in which this demand was evidenced was in the field of motor car lighting.

There is a vast difference to the ordinary motorist between the simple pushing of a button and the lighting of a match, or often several matches, to obtain illumination at night. Automatic lighting can be and is obtained very satisfactorily with acetylene lamps by arrangements in which a spark is made to jump across the burner at the same time gas is turned on; both operations being accomplished by the throwing of the switch or valve at the dash.

Electric lighting possesses inherent advantages over other types of illumination. The chief of these is that where an electric lighting system is installed the current thus obtained may be employed as the secondary or often as the chief source of supply for ignition in the engine. With the recent development of electric self-starters, the three functions of starting, ignition and lighting may be combined in the same installation.

The original method of obtaining electricity for lights was by the employment of a storage battery which could be taken out and charged at a stationary plant whenever necessary. To have a system, however, which is of general benefit, the necessity of removing the storage battery for a recharge must be eliminated. This is accomplished by installing in connection with the battery a generator by which the battery is kept charged to capacity.

To consider this type of system alone it may be said that there are two general divisions of dynamo lighting systems, those in which the battery is considered as a source of current for the light and the generator carried only as an auxiliary to keep the battery in shape. This arrangement is the popular one in Europe and is employed to some extent among

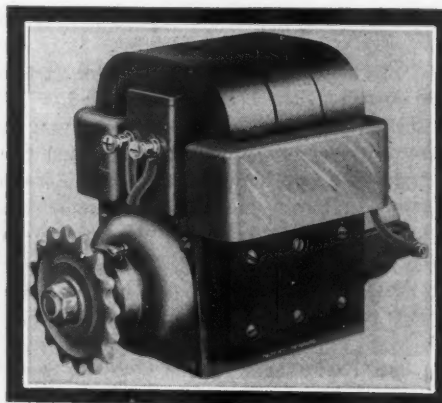


REMY LIGHTING AND IGNITION MAGNETO

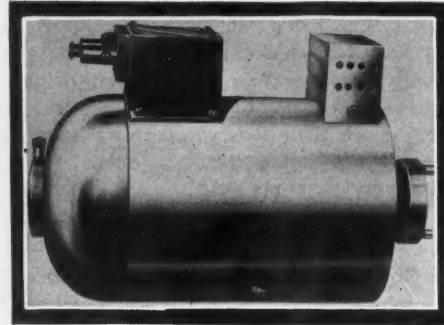
## Field-Wound and Magneto Generators for Lighting—Methods of Keeping Current Supply Constant—Combined Ignition and Lighting System

American makers. With this arrangement it is not necessary that the voltage of the generator be regulated closely, for a well-designed battery will withstand slight overcharges without ill-effects.

In the other class of systems, that in which the generator is considered as the chief source of current supply for the lamps, the battery is only employed to assist the generator when it is running at a low speed or when the car is standing still. In this case, the battery is said to be floated upon the line. The generator supplies the lamps direct under ordinary running conditions and the battery is kept at full charge by the excess current delivered by the generator over that which is required by the lamps. The delicate metallic filaments of the lamps and the smaller capacity of storage battery which



DEACO MAGNETO GENERATOR



RUSHMORE GENERATOR

may be used render it necessary that the current supply be regulated within pretty close limits, as slight variations in current flowing through the lamps mean much greater variations in the illumination given by them.

The term regulation may be explained by the fact that a generator of the ordinary type supplies current at a pressure proportional to the speed at which its armature revolves and where the generator, as is always the case, is driven from the engine, which is necessarily a variable-speed mechanism, the voltage delivered will be varying between zero and the maximum as the engine speeds up or slows down. In order to keep the voltage, and thus the current constant, some method of regulating it is necessary. This is obtained in two different ways, either the generator is designed to be self-regulating by arrangement of its field coils or some sort of automatic regulator is incorporated in the system.

These automatic regulators may be either electrical, mechanical or a combination of the two. The electrical regulators usually employ a solenoid or relay arranged to throw the generator and lamps or generator and battery into connection when the current supply is correct, or out of connection when the current supply either rises above or falls below the normal. Mechanical regulators usually operate upon the armature of the generator itself, causing it to clutch and declutch as it comes into or goes beyond the normal speed.

The arrangement usually consists of a governor of some sort by which the armature speed is kept fairly constant. With regulators of this sort there is necessary, in addition, an automatic cut-out which will disconnect the battery and generator when the speed of the generator is too low to supply current at a voltage higher than the voltage of the storage battery. Otherwise, the storage battery will feed back to the generator windings and discharge itself. The combination electrical-mechanical controller ordinarily employs a governor, which cuts resistance in and out of the circuit as the armature speed varies. Some of the arrangements by

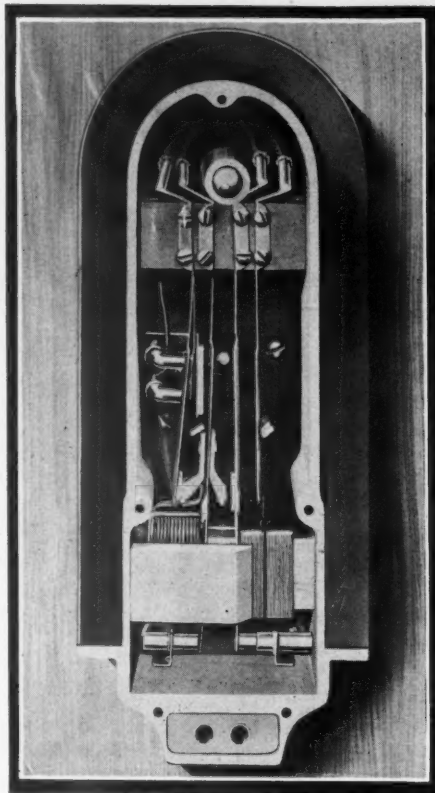


which these difficulties are overcome are illustrated and discussed in the following pages.

**Delco**—The Delco system of electric lighting and ignition, a product of the Dayton Engineering Laboratories Co., embodies a generator, controller, storage battery, ampere-hour meter and the necessary switches. The controller is nothing more than a switch with several knife-like contacts. When the controller is in one position it connects the four sections of the storage battery in parallel, supplying 80 amperes at 6 volts. In another position the controller connects the four sections of the battery in series, giving out 20 amperes at 24 volts, for starting, a feature of the system being that the generator may be operated on 24 volts for starting the engine.

The Delco battery contains twelve cells giving 2 volts each. Shift from a 6-volt generator to a 24-volt motor does not affect the lighting system, as connections to the battery for lighting and ignition are never changed. When the engine is not running, the battery furnishes current for the lights and ignition, as well as starting. Above 300 revolutions the battery assists the generator to furnish current when the latter is not running fast enough to meet the demand. Ignition consumes less than 1 ampere, and the generator furnishes it at 300 revolutions per minute of the engine. Lighting and ignition consume 7 amperes, which is furnished by the generator when the engine is running at 410 revolutions per minute. The self-starting feature was explained in detail last week.

**Apleco**—One of the first systems of electric lighting designed for motor car use was the Apleco system of the Apple Electric Co. This consists of a generator, storage battery, regulator, volt-ammeter and the necessary switches. Aside from general constructive features and the fact that the generators are designed in three different types to run at different speeds, the chief point of interest is the method of control by which the output is kept constant. On the Apleco regulator this is accomplished by introducing resistance in the field circuit, the resistance is automatically increased in the field coils in proportion to increase in engine speed. It



AUTOMATIC CONTROL OF MATCHLESS

is practically what in commercial lighting would be called a field rheostat.

The device is constructed of carbon disks laid one upon another and held together by spring pressure. This pressure is relieved magnetically as the current generated by the dynamo increases, thus increasing the resistance in the field circuit and cutting down the field exciting current, which in turn causes a proportionate decrease in the generated voltage. As soon as the dynamo has reached the normal voltage, the automatic cutout connects it to a storage battery for charging. All Apleco systems have a capacity of 60 candlepower, which may be divided among the various lamps of the car as desired. The system is designed to furnish 6-volt current for ignition, and the latest development is a combined lighting, ignition and starting system, described in the article on self-starters last week.

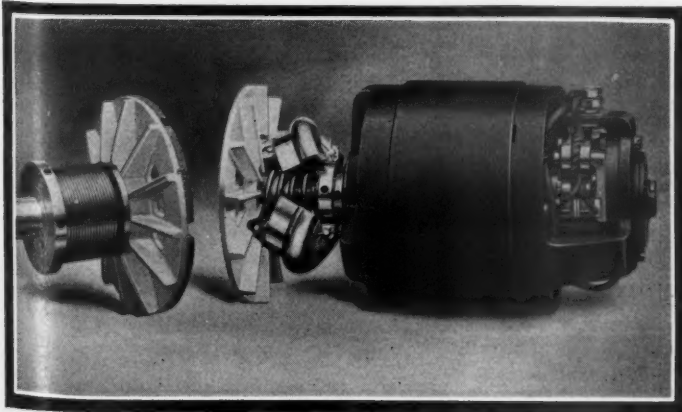
**Gray & Davis**—The improved Gray &

Davis lighting system is noteworthy because of the method of regulation employed. A simple mechanical governor on the armature shaft is designed to keep the latter turning at practically constant speed regardless of variations of speed of the engine. The governor is of the fly-ball type and operates through a flat-plate friction clutch of large diameter with aluminum-to-asbestos fiber working surfaces. Up to an armature speed of 1,200 revolutions per minute the clutch holds fast and is so balanced that it is capable of sustaining a 50 per cent overload without slipping. As the speed of the driving pulley increases above that point the clutch begins to slip and continues to do so just sufficiently to hold the armature down to the critical speed necessary for proper current supply.

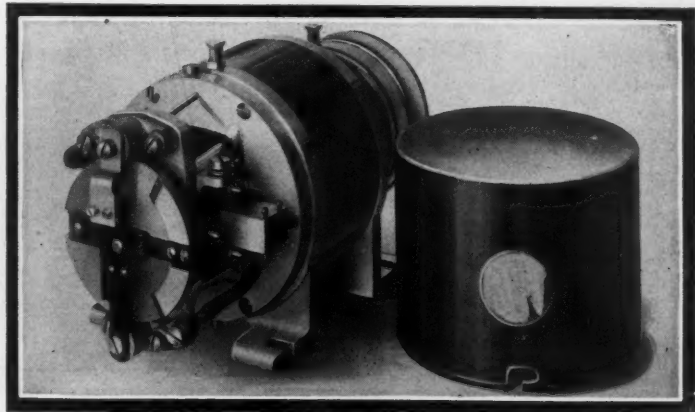
The dynamo is compound-wound when lighting the lamps and shunt-wound when charging the batteries. It is cooled by forced draft. When the engine is at rest the lamps are fed by a storage battery, which, being intended to supply the side and tail lamps only, need not be of large capacity. The shunt winding of the dynamo on charge permits the current generated to decrease as the battery approaches complete charge, giving the so-called taper charge. An automatic cutout is mounted on the switchboard with the voltmeter and ammeter.

**Rushmore**—The primary feature of the Rushmore dynamo, which is the initial factor of the lighting system of the Rushmore Dynamo Works, is that it is built to deliver a substantially constant current. Being used to charge a storage battery, it follows that the voltage is determined by the battery and is necessary to produce the designed charging current against the approximately constant resistance of the battery and lamps.

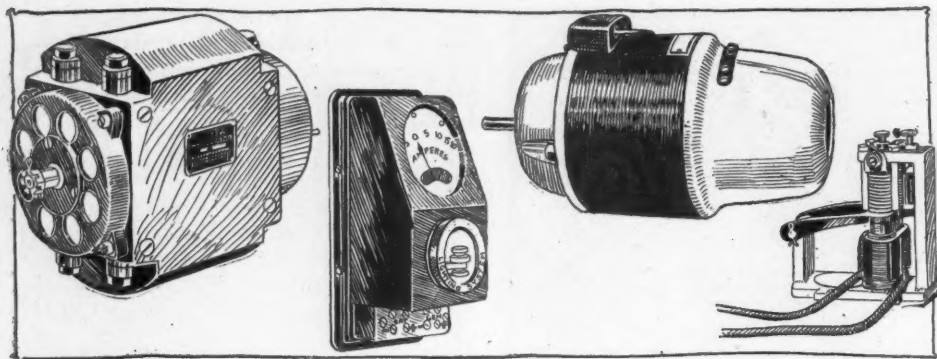
The inherent regulation of the dynamo is obtained by a shunt field coil with which is connected a balance coil, so that the former receives current at all times at the constant voltage of the battery, and another winding is added to the field. This is what is called a bucking coil and is so connected as to oppose the shunt field coil. The effect of this is to reduce the field current as it is connected as a



GRAY & DAVIS DYNAMO WITH SPEED GOVERNOR



DYNALUX GENERATOR WITH CONTROLLING RELAY



ELBA GENERATOR AND CONTROLLER

NORTH EAST DYNAMO REMY REGULATOR

shunt across the iron ballast coil. Its resistance is considerably greater than that of the ballast coil when the latter is cold. When, however, the ballast coil gets hot its increased resistance forces the bulk of the current delivered by the dynamo to pass through the bucking coil, thereby greatly increasing the counter excitation produced by the latter. By suitably proportioning the ballast coil and the bucking coil to the other elements, the increase in current output, on which the temperature of the ballast coil depends, may be as small as desired.

The Rushmore dynamo is designed to produce a small charging current of the necessary voltage at engine speeds down to 200 revolutions per minute. Below that speed the automatic cut-out disconnects the dynamo from the battery. At higher speeds the current, but not the voltage, increases rapidly up to an engine speed of about 600 revolutions per minute, corresponding generally to a car speed of about 15 miles per hour. The current delivery at this speed is about 12 amperes. At higher speeds the current remains practically constant, no matter how fast the engine runs, and does not exceed 13 or 14 amperes under any conditions.

**Matchless**—The Berdon Matchless lighting and ignition system for motor cars, manufactured by the Esterline Co., possesses some very unique features. The equipment comprises a positively-driven, magneto-type direct-current generator, a storage battery and an automatic, self-closing, low-voltage release, overload and reverse current controller. The generator is made to connect directly to the pump shaft in the same manner as an ignition magneto, without the use of a speed-controlling device. The use of a permanent magnet generator is made possible by the unique electric controller which comprises a part of the system. The controller has four distinct functions, as follows:

1—To connect the battery to the generator when the voltage of the generator has reached the point where it will charge the battery.

2—To limit the current through the battery to the normal charging rate, when the generator is running at high speed.

3—To disconnect the battery from the generator whenever the voltage of the

generator is less than that of the battery.

4—To prevent the connection of the battery to the generator when the car is driven backwards.

The operation of the controller is such that all electrical circuits are opened and closed at the instant the current is zero; that is to say, no currents whatever are broken, there is no sparking or burning of the brush contacts. With the car at rest or running at slow speed, the connection between the battery and the generator is open, but when the voltage of the generator becomes sufficient to charge the battery, the circuit between the battery and the generator is closed. Should the speed continue to increase, as soon as the charging current reaches the normal charging rate of the battery one of the coils comes into action and prevents the current from exceeding the normal charging rate.

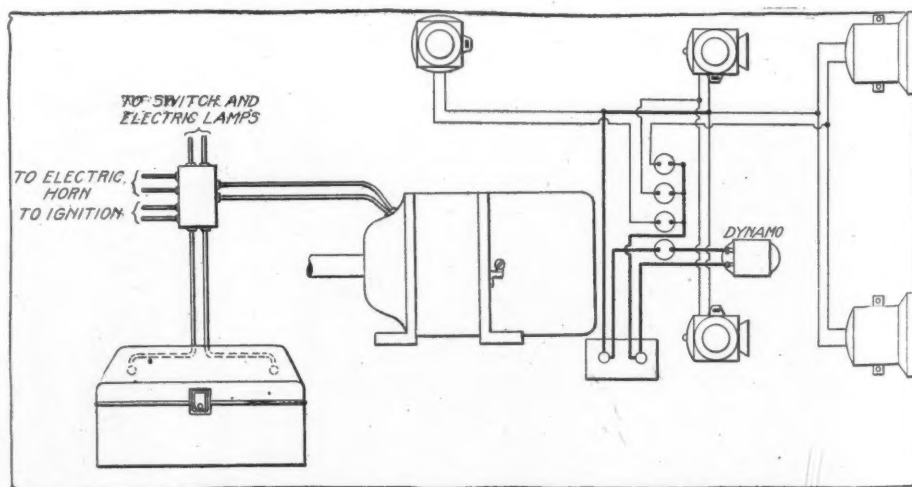
**Ward Leonard**—An improved automatic electric lighting system has been brought out by the Ward Leonard Electric Co. The generator is of the wound-field type, and silent chain, or other equivalent positive driving means, operates the generator from the engine shaft. As the speed of the engine and, consequently that of the generator, rises, the generator voltage becoming greater than the battery voltage causes an electrically-operated switch to close automatically, connecting the batteries to the generator. Should the generator voltage fall below that of

the cell, the same switch automatically opens, preventing back discharge of the battery.

At increased car speeds, when the generator voltage becomes so high that the charging current flowing into the battery exceeds a predetermined amount, an automatic series switch opens to insert a single step of resistance into the dynamo field. The result is to reduce the generator current output to a point where the switch again closes, short-circuiting the generator field resistance. This action continues intermittently. The generator is arranged to charge the battery at car speeds above 10 miles an hour.

A feature of the system is the provision of duplicate batteries, each smaller than the ordinary battery and either one of which can be thrown into circuit by a double-throw switch. While one battery is being used for ignition, the other is employed for lighting, thus insuring that the grounded ignition system and the ungrounded lighting system be kept entirely separate. The importance of this provision is realized, as a grounded circuit might kill the ignition system and stall the car.

**Remy Magneto Light**—The Remy combined lighting and dual ignition magneto system is the latest product of the Remy Electric Co. It is a system by which both electric lights and ignition are supplied from one magneto. It provides high-tension current for the dual ignition of the motor and low-tension current for the lighting of the motor car. The equipment consists of the magneto, dash coil box, a storage battery and a distributor block. When the car is running, the magneto furnishes both electric lights and ignition and charges the storage battery. When the car stops, the storage battery automatically takes up the lighting load. This magneto is a combination constant direct-current generator and ignition device. It consists of an armature, horseshoe magnets, field coils, ignition circuit-breaker and high-tension ignition distributor. The current is held constant by

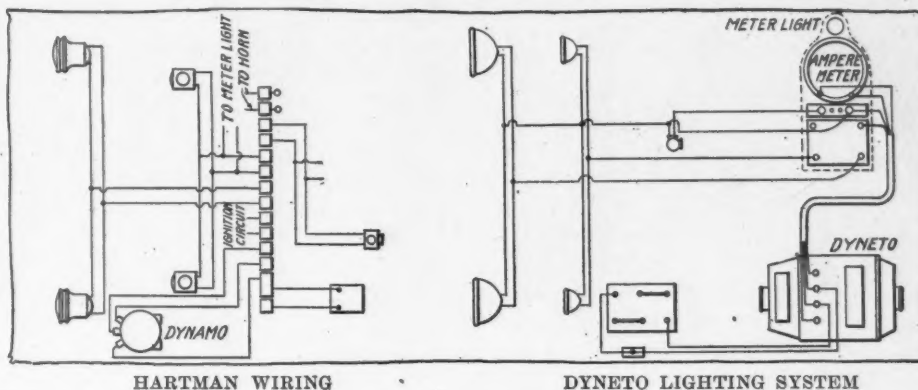
DYNALUX LIGHTING, IGNITION AND  
SIGNALLING SYSTEMDEACO SYSTEM FOR LIGHTING AND  
IGNITION



automatically varying the current in the shunt-wound field coils around the magnets, thereby increasing or decreasing the intensity of the magnetic field to compensate for the varying speed of the magneto.

The regulator inside the coil box holds the current at 8 amperes. It consists of an electro-magnet, actuating an armature, which increases or decreases the pressure upon a column of carbon disks. The regulator connects with the shunt-wound field coils around the magneto. As the speed of the motor increases, the electrical output of the magneto increases and magnetizes the core of the regulator coil. When 8 amperes is reached the magnetism attracts the armature, which releases the pressure on the carbon disks. As the disks loosen, resistance in the field circuit is increased, holding the output at 8 amperes. Should the engine be throttled down to a point below speed sufficient to generate 8 amperes the electro-magnetic pull on the armature lessens, increasing the pressure on the disks. This makes a closer connection until the carbon is practically a solid conductor, carrying all the field current. The instant the magneto output is not sufficient to carry the load the storage battery supplies the required current. This regulator is of simple, practical and proven construction. With this system there is a 70-degree timing range. Since there is a constant direct current, the spark is of the same intensity at any point in the timing range.

**Vesta**—For the last 2 years the Vesta Accumulator Co. has made an electric lighting and ignition system for cars. The outfit consists of a magneto generator, storage battery, lamps and switches. The Vesta generator is of the permanent magnet type and is provided with a centrifugal governor for regulating the amount of current supplied to the battery and to act as a cut-off when the motor slows down. The governor works in conjunction with a rheostat located under the heads of the magnets, being connected



by an arm to a segment plate. There are two platinum contact plates on the connecting arm. The generator may be driven by gear, chain or belt.

**Elba**—The Elba lighting system is the product of the Willard Storage Battery Co. The dynamo is designed to furnish current for maintaining the battery in a fully charged condition. To do this successfully the output must not exceed the normal charging rate for the type of battery used. This is accomplished by an arrangement of field coils and armature windings which causes a counter electromotive force to be set up, thereby preventing an increase of current output as speed of the machine increases. By this construction the machine's current output is held uniform over speeds ranging from 12 to 60 miles per hour.

To prevent the battery discharging backwards through the windings of the dynamo, a small automatic cutout switch is placed in the circuit between dynamo and battery. An ammeter is mounted with the automatic cutout on a small switchboard arranged for mounting on the dash. The function of the ammeter is to show whether the system is working properly and also to record the amount of current passing from dynamo into battery.

The comparatively high discharge rate required of a battery for operating lights makes it imperative that a lighting—not a sparking—battery be used.

**Contrometer**—One of the newest outfits

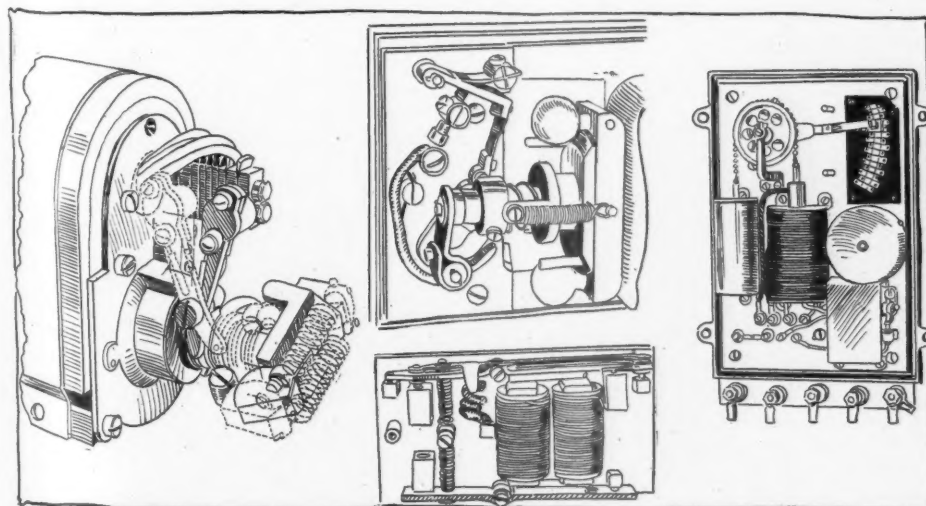
for electric lighting of the motor car is the Contrometer electric lighting plant manufactured by the Leece-Neville Co. The automatic current regulating device is called the contrometer and is mounted on the dash. The L-N dynamo used in these plants is driven at a very low speed, being geared to the engine to run at about  $1\frac{1}{2}$  times engine speed, that is, to rotate at about 500 revolutions per minute when the car is going at 10 miles per hour.

**K-W Lighting Magneto**—In the K-W system a special magneto is offered for supplying the current for ignition and lighting the two headlights. No attempt is made to light side and tail lights from the magneto, a separate battery being employed for this purpose. The magneto, of course, is of the low-tension type and has friction drive, so that it can be mounted on any car which has an exposed flywheel or that has a moving part that will give the magneto a speed of about four times engine speed. There is, of course, a slight variation in the current supplied at very low speeds and at very high speeds, but the design is such that normal lighting is obtained at 8 miles an hour, the lighting increasing until the car runs at 25 miles an hour, after which the current does not increase.

**North East**—The system developed by the North East Electric Co. for electric lighting only has been on the market for the past 2 years. The system comprises a special generator, a 6-volt battery of 80-ampere hour capacity and a lock switch mounted on the dash. The generator is of the same size and mechanically embodies all the features that have been mentioned regarding the North East generator used for starting and lighting, described last week. The capacity of the generator is 125 candlepower at 6 volts. The lock switch is of the same design as that used in the lighting and starting device.

**O'Neill**—A connection with the electric starting system of the O'Neill Lighting Co. there is embodied a method of supplying current for electric lighting. The features of the system were described in an article on self-starters. The maximum output of the generator is obtained at a speed of 10 miles an hour, but remains constant to as high as 60 miles an hour.

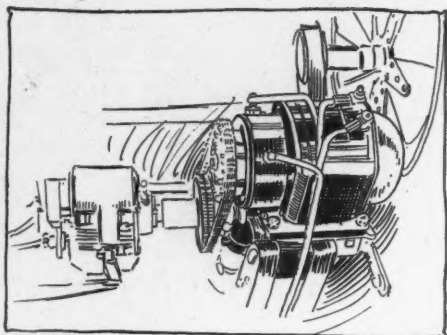
**Deaco**—A system in which the generator



VESTA AUTOMATIC RHEOSTAT IN GENERATOR

ABOVE, DUPLEX GOVERNOR  
BELOW, DEACO CONTROL

ADLAKE AUTOMATIC  
RHEOSTAT



WARD LEONARD GENERATOR INSTALLED

combines the functions of magneto and dynamo is that of the Deaco Electric lighting system, which is stock equipment on the Marquette, a feature which was omitted in the description of that car which appeared in a recent issue of Motor Age. This system is made by the Detroit Electric Appliance Co., and its two features are the construction of the field-wound magneto generator and the automatic regulator. In construction, the generator is similar to a magneto, as it has three compound horseshoe magnets, which form permanent pole pieces. Upon these permanent magnets there are auxiliary field windings by which constant current is obtained under control from the regulator. The latter consists of two electro-magnets which operate two armatures held away from the magnet by springs. Contact points upon the ends of the armatures make the necessary connections for current regulation.

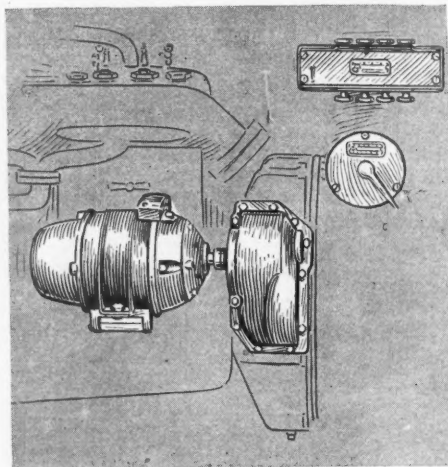
The electro-magnets are in series with the line, so that the strength of the pull varies proportionately with the current flowing. At low speed the regulator shunts the field windings across the line, the connections being such that the magnetism of the permanent magnets is increased. As the speed of the generator increases upon speeding up the engine, the field windings are cut out entirely and upon further increase of speed the field windings are connected again with their terminals reversed so that the electro-magnetism due to the field windings is opposing that of the permanent magnets, and a still further increase in speed results in the automatic introduction of resistance.

The controlling feature is such that a constant current is given at a pressure of 6 volts for all speeds above 500 revolutions per minute, with the generator running at engine speed. Of course, this current can be employed for ignition purposes, and has the advantage that the retarded spark is equally as good as the advanced spark.

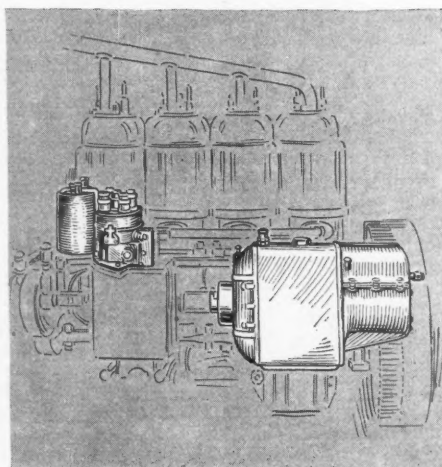
**Dynalux**—The Dean Electric Co. which for many years has been supplying lighting outfits for railway and street cars has developed the Dynalux system for lighting motor cars. In this the generator is designed to be geared to the crankshaft and keeps the battery under charge from which the lighting current is supplied. The current delivered to the lamp and storage

battery is practically constant, as the solenoid relay controller incorporated with the generator automatically opens the circuit when the engine is not running or the speed too low. At these times the storage battery furnishes the required current, the generator supplying current for ignition, warning signals and lamps when the motor is running at normal speed. Simplicity is the chief feature of the system, as only two wires are attached to the generator and it makes no difference which generator wire is attached to the battery connections as correct operation is insured either way.

This company has also brought out a telltale device, called the Centurian, which



NORTH EAST LIGHTING GENERATOR AND SWITCHES



INSTALLATION OF DELCO DYNAMO AND DISTRIBUTOR

automatically notifies the driver if any of the lights go out. It is particularly applicable to the tail-lamp circuit and can be wired so that the speedometer light acts as the telltale. The system as a whole is a low-voltage system operated on 6 volts.

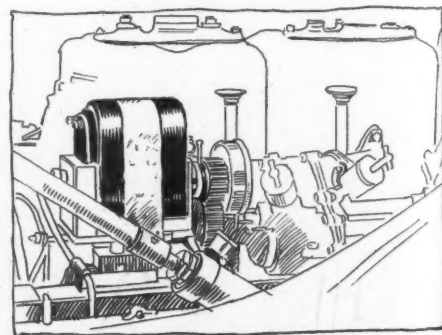
**Dyneto**—The electric lighting system of the Dyneto Electric Co. is designed to supply 6 and 7 amperes at 6 volts. The dynamo, which is called the Dyneto and is designed to run at normal speed between 500 and 600 revolutions per minute. An automatic controller provides constant cur-

rent for lighting, ignition and battery charging. On the dash there is a switch-meter unit consisting of an ammeter and the lighting switch on the same base. This outfit is employed in the electric starting equipments of the Hartford Suspension Co., described on another page.

**Duplex**—The chief feature of the Duplex system for illumination and ignition of motor cars manufactured by the Duplex Electric Co. is the current regulator. It is modeled on the dynamo frame and operates mechanically. The generator is of very small size and supplied with ball bearings. A special Duplex battery is supplied which will operate the lamps continuously for 7 hours without a recharge. The switchboard, which is mounted on the dash, is fitted with plug connections for convenience in wiring. On it is mounted a volt-ammeter wired to bring the ammeter side in continuous circuit during the operation of the dynamo.

**Auto-Liter**—The Auto-Liter, a product of the Electric Auto-Lite Co., employs a magneto generator as a source of current. In connection with this the storage battery is kept at full charge automatically by means of a cutout, which connects and disconnects generator and battery when the generator pressure rises above or falls below the normal charging rate. The cutout is a part of the generator, being incorporated with the armature. The system has the feature of furnishing current for ignition purposes, as well as lighting.

**Hoyt-Light**—As in most of the other instances, the automatic control is the feature of the Hoyt-Light system marketed by the Hoyt-Light Sales Co. This is a mechanical control and is located on the dash. It performs its function in the following manner: The battery is charged by the generator with a predetermined current for a definite period of time, when the control automatically disconnects. When lights are desired, the discharging gear allows the current to flow out at a certain definite rate independently of the number of lights in circuit. When the battery has been discharging for a definite length of time the charging gear is automatically brought into action. An auxiliary gear within the control provides for lights should the car be stopped at a point where the discharging gear has completed its discharge and the charging gear just begun the



INSTALLATION OF AUTO-LITE DYNAMO



recharge. The generator is of the permanent-magnet type and is provided with a flyball governor, which automatically breaks the circuit should the generator be reduced in speed to a point where the pressure of the battery is greater than that of the generator. The cutout also acts as a high-speed release to prevent excessive voltage, being generated by the dynamo and thus injuring battery or lamp when the engine races.

**Hartman**—The Hartman Electrical Mfg. Co., of Mansfield, Ohio, has brought out a type of dash switch for controlling the various lighting circuits. This switch can be used with a straight storage battery system as well as with the generator system for which it was designed. By means of a resistance coil, which is a part of the switch, the headlight can be dimmed for city driving or when approaching another car. The switch proper is on the engine side of the dash, where connections with the various lighting circuits can be made easily. The switch handle is made removable, so that when the driver leaves the car he can turn off the lights or leave them burn in any combination, with the assurance they will not be tampered with during his absence. The practice of dimming the light is more in evidence in Europe than in this country.

**Splitdorf Lighting Magneto**—C. F. Splitdorf has brought out within the past 2 weeks a magneto designed for lighting and ignition, and also a magneto designed for illumination alone. Both are designed to furnish a 6-volt current with the battery floating on the line. There is a solenoid low-speed cutout and regulation is obtained by diverting the permanent magnetic field away from the armature at high speeds.

**Westinghouse**—The Westinghouse Electric and Mfg. Co. has produced a lighting and ignition outfit, the generator of which is interchangeable with any magneto. It has automatic spark advance of 32 degrees and is regulated by a centrifugal governor.

**Adlake-Newbold**—The combination electric lighting and ignition system of the Adams & Westlake Co., called the Adlake-Newbold system, is a miniature of the railroad axle lighting system that has been in general use for many years. The current is generated by a shunt-wound

## New Things for Motorists

**Prouty Shockless Springs**—In the effort to produce a motor car spring which will eliminate the necessity for the employment of the pneumatic tire and yet provide easy riding qualities, Prouty & Co. has brought out what it calls the Auto-shockless spring. This spring is meant to replace the ordinary type of spring between-car frame and body and its application to the car is shown in the upper illustration. A complete set consists of four spring units, the construction of which is shown in the lower cut. It will be seen that the design is an arrangement of volute springs with a spring lever which is provided with roller bearings and rests on the seat of the axle, replacing the lower half of the old spring. It is claimed that the travel of the springs is one-third the travel of the axle so that the reduction of jar is in the ratio of 3 to 1. The spring lever arm also forms a torsion rod and as the length and angle is fixed, it does not throw the axle out of alignment to affect the steering as is sometimes the case with elliptic springs due to their elongation under sudden shocks. The travel of the front springs is adjusted to about two-thirds that of the rear springs.

**Tinol**—A very handy soldering outfit put up in a portable case to be carried in the tool box for roadside repairs is marketed by Hess & Sons. The outfit includes an alcohol soldering torch, of very compact shape and light weight, an iron with tinol solder and paste. With the tinol paste it is claimed that no careful cleaning is necessary. Tinol is simply solder in pulverized or tubular form combined with a special flux. The tinol flux is noncorrosive but is said to have a cleansing action. Soldering of electrical joints on the road can be done by wrapping with waste wet in gasoline and burning off the gasoline. A piping leak may be repaired by a sleeve of sheet copper bound with wire and soldered. It is claimed that pinhole leaks in radiators may be repaired without removing the radiators. There are a number of uses about the car suggested for tinol such as locking loose nuts, and so on.

dynamo and is controlled by an automatic regulator. This keeps the voltage of the lights constant and preserves the proper electrical balance between the dynamo and lights at night and the dynamo and battery in daytime.

**S. & D.**—The S. & D. generator for electric motor-car lighting is designed to combine in one apparatus a generator, an automatic switch for connecting and disconnecting it to the storage battery, and a current regulator to automatically regulate it regardless of variations in engine speed. The arrangement is such that should the battery become damaged or disconnected the lights will keep burning

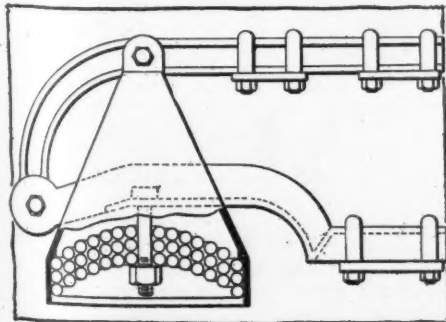
as long as the dynamo is supplying current. It is made by Spindler & Deringer.

**Wagner**—The dynamo of the lighting outfit of the Wagner Electric Mfg. Co. is of the shunt-wound type and driven by a chain-shaft-chain transmission from the crankshaft or other portion of the transmission. As the generator is shunt-wound it is not necessary to weaken the field with increasing speed and perfect commutation is insured. An automatic switch closes the circuit between dynamo and battery so that charging commences when the generator voltage is greater than that of the battery. The switch automatically opens if the generator voltage drops, thus providing regulation.

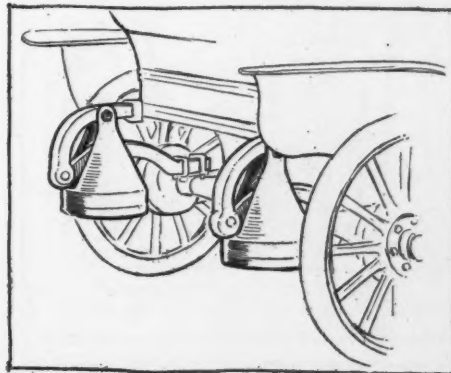
**Electro**—Combination of lighting and ignition features is shown in the equipment manufactured by the Electro Lighting Co. The generator is a direct-current machine revolving at crankshaft speed. The wiring of the electro magnetic field is such that an equally hot spark is obtained throughout a wide range of timing. The dynamo supplies current for lamps and ignition above an engine speed of 200 revolutions per minute, below which point it is furnished by the battery automatically.

**Perfection**—The Economy Mfg. Co. has produced an electric system for lighting, ignition and signalling, in which the charging element is a magneto generator. The battery in this system is floated on the line and has a capacity of 100 ampere-hours and will serve from five to seven tungsten lamps with a total of 50 candlepower for 10 hours. Automatic regulation is obtained by an automatic cutout controlled by a mechanical governor to prevent the injury from excessive voltage.

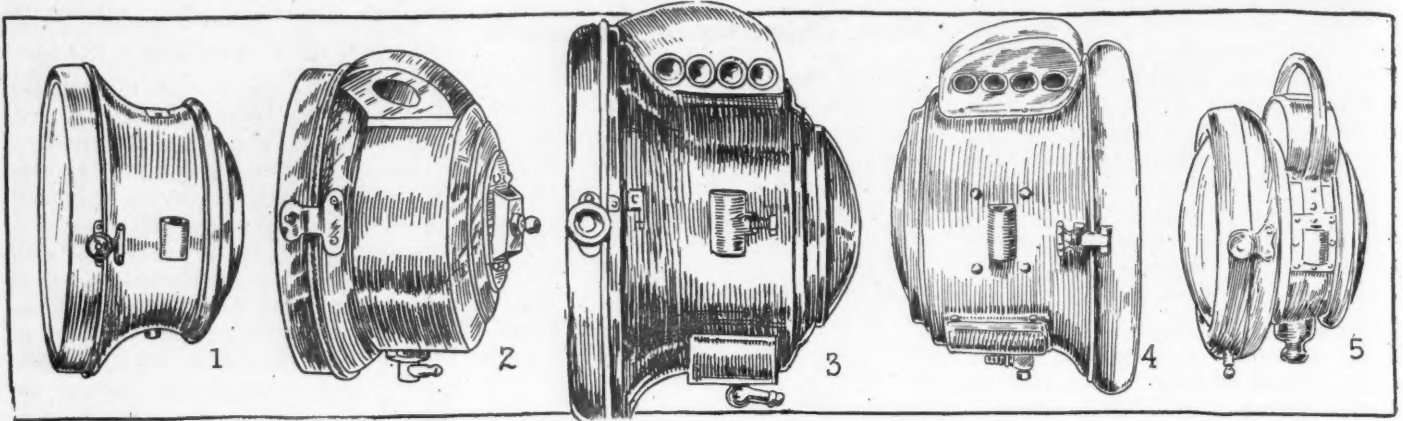
**U. S.**—A development of the U. S. Light and Heating Co.'s car-lighting system has appeared with alterations in construction for application to motor cars. The system involves a generator and battery with automatic regulation of current supply. A small metallic switchboard with voltmeter and ammeter are located on the dash. Some of the units of this system have been adopted in other designs of electric lighting and starting outfits, many of which were described last week.



DESIGN OF PROUTY SHOCKLESS SPRING



APPLICATION OF PROUTY SPRINGS



HEADLAMPS—1, GUIDE, DE LUX. 2, HAWTHORNE, OLD SOL. 3, SOLAR GAS LAMP. 4, HALL GAS LAMP. 5, B & L, DE LUX

## LAMPS

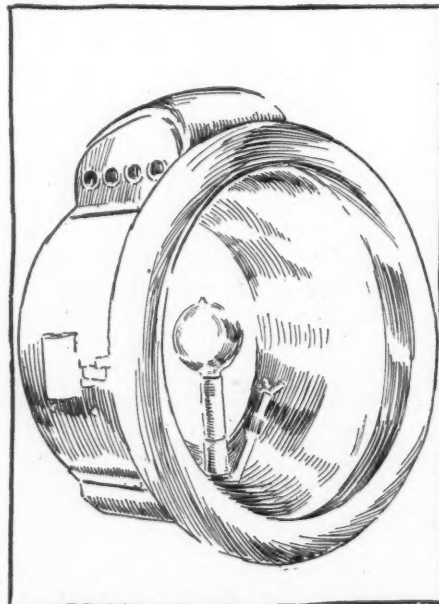
The Trend in Design and Construction for 1912 of Motor Car Lights

**S**IMPLER and more durable designs in gas, oil and electric lamps; an extensive introduction of the bullet type of electric head lamp; an increase in the number of electric lamp constructions, including combination oil and electric side lamps, dash side lamps, separate or in combination with ventilators for the front seat compartment of fore door body designs, tail lamps for illuminating the license numbers, and signaling tail-lamp outfits; enhanced popularity of the Edi-Swan socket; improvement in the design and construction of electric lamp filaments, the introduction of a new and improved parabolic glass reflector which will not tarnish and can be easily cleaned without damage; the provision by several makers of outfits for using the Ford magneto for lighting the head lights; and a stimulation in the production of mechanisms for lighting and regulating acetylene lamps

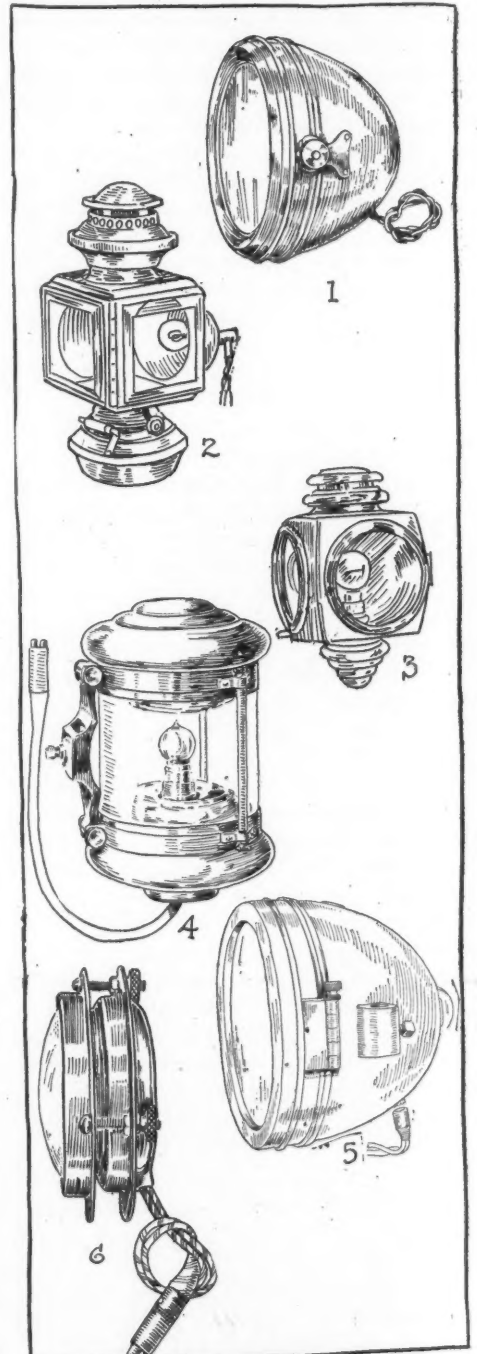


NEW SIDE LAMP DESIGNS

1—Solar Bullet Electric; 2—New E. & J. Electric; 3—Ilico Combination Oil and Electric; 4—Cowles Pillar Lamp; 5—Luzfer All-Glass Body; 6—Cowles Combination Dash Lamps and Ventilators for cars of fore door type



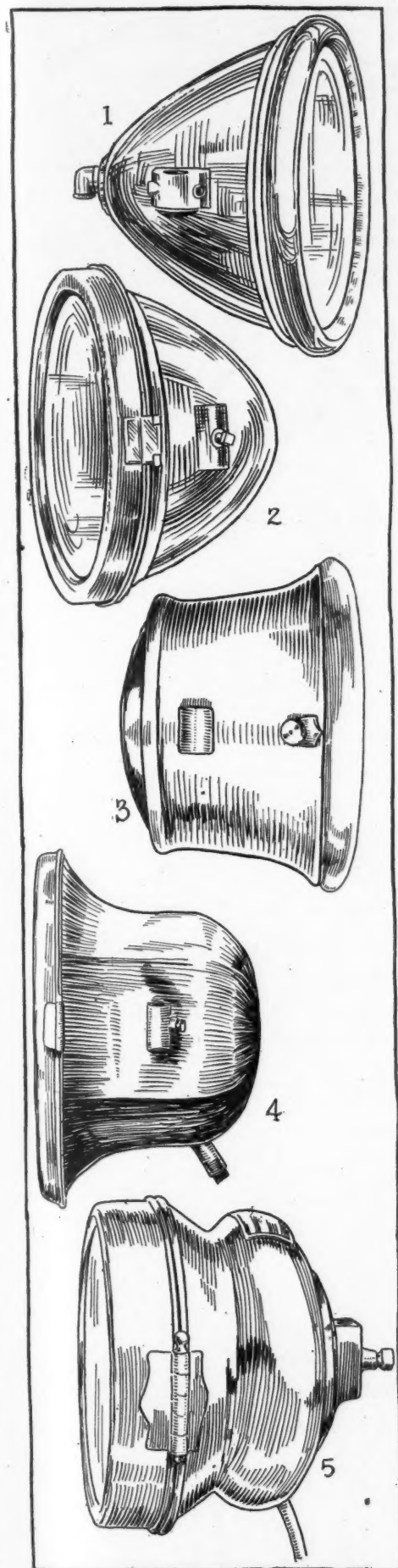
HALL GAS AND ELECTRIC HEADLIGHT



MORE NEW SIDE LAMPS

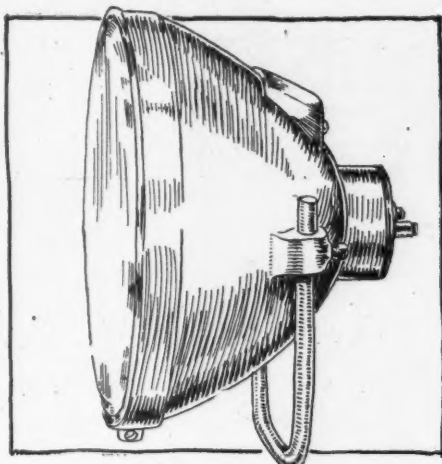
1—B. & L. Electric; 2—Fowler Combination Oil and Electric; 3—Elba Electric; 4—Guide Cylindrical Pillar Lamp; 5—Vesta Bullet Type with Adjustable Focus Nob on Back; 6—The New and Neat Guide Dash Lamp Design





## NEW ELECTRIC HEADLAMP DESIGNS

1—The Apico with New Glass Golden Glow mirror; 2—Gray & Davis with convenient focus adjustment; 3—New E. & J. design; 4—Solar De Lux; 5—Hartman Coupe Headlamp



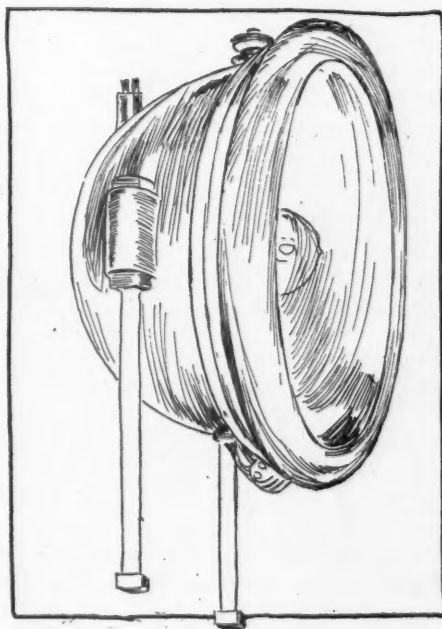
## NEW ELECTROBOLA HEADLAMP

Which has its bulb mounted in a removable block at the rear of the lamp

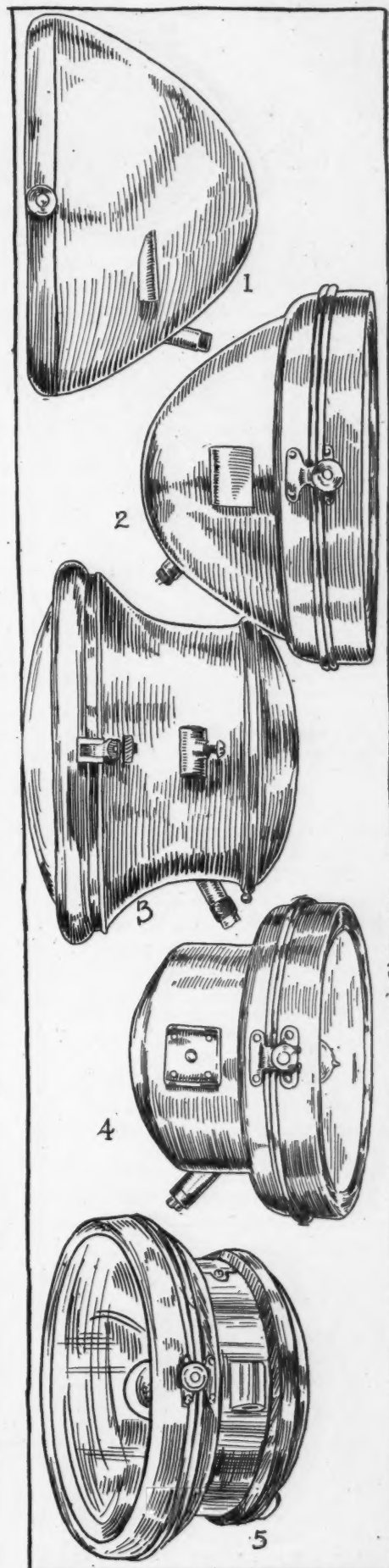
without stopping the car or leaving the seat; and a means to insure illumination in electric tail lights, comprises the development in lamp design for the season of 1912.

As for the improvement in gas headlamp designs little can be said except that in the majority of cases they have been made to comprise the least number of parts possible in gas lamp construction. There has been a tendency toward the production of a perfectly simple and smooth outer surface. Practically all makers bring out designs with a black finish of metallic lacquer-like luster or black enamel finish. They are made in sets to conform with the new straight line body designs, and many are of a combination design for use of either electricity or gas. **Simplicity and Durability**

Simplicity and durability are the most evident results of the year's progress in lamp design. The impression of simplicity is emphasized by the extensive introduction of electric lamps, which by virtue of the fact that they require no oil receptacle or means of ventilation, permits of

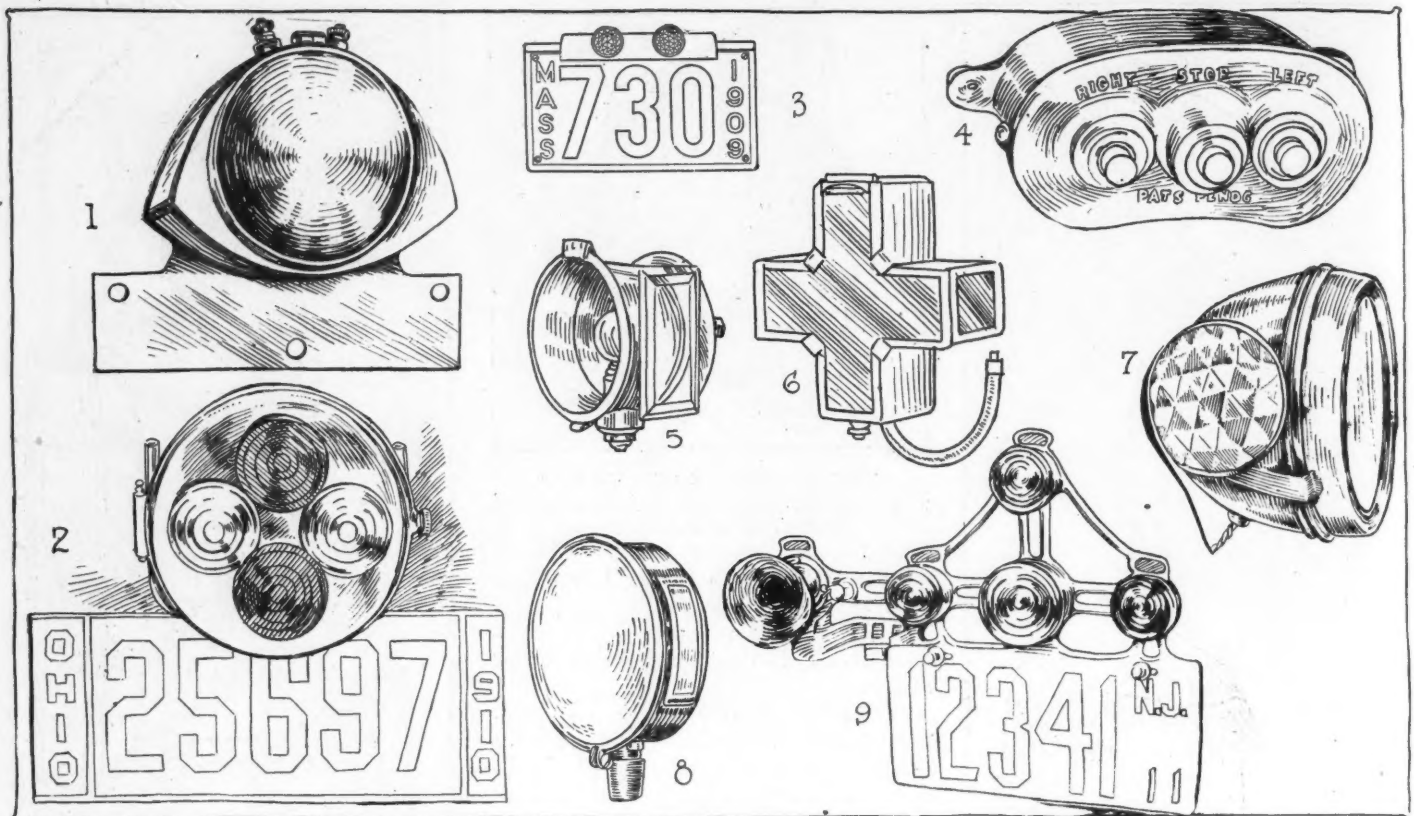


## FOWLER ELECTRIC COUPE HEADLAMP



## MORE NEW ELECTRIC HEADLAMPS

1—Neat and Simple Solar; 2—K-W Bullet Type; 3—Another Solar Design; 4—Another K-W Construction; 5—An Elba Headlamp design of medium large size



#### NEW TAIL LAMP DESIGNS, LICENSE NUMBER ILLUMINATORS AND SIGNALLING DEVICES

1—Parker tail lamp and license number bracket with clear lens in lower portion of lamp; 3—Neil, and Ham Mfg. Co.'s rear end signal and license number illuminator; 3—Gray & Davis license number illuminator; 4—Switch used in connection with Neverout combination license illuminator and signal device Fig. 9; 5—The Elba tail lamp with clear lens in side; 6—Fowler Red-Cross tail light; 7—Niagara tail lamp and license number illuminator; 8—E. & J. lamp showing lens in its side for illuminating the license number plate of the vehicle

simplicity and variety in design not possible in oil or gas lamps.

Simplicity reduces the cost of production, so that generally speaking the price of lamps has been reduced; on the other hand, for the same price previously paid for ordinary lamps one now can obtain lamps of better stock, produced with more care and better workmanship; hence the increased durability. The story of the latest developments and most up-to-date tendencies in lamp design perhaps is better illustrated than described, and in the accompanying illustrations an effort has been made to show the trend.

#### Electricity in Lamp Design

The remarkable progress that has been

made in the development of electric current-producing machines has had a marked influence upon lamp design, and it is, perhaps, the primary stimulus responsible for the enhanced popularity of electric lighting of motor cars.

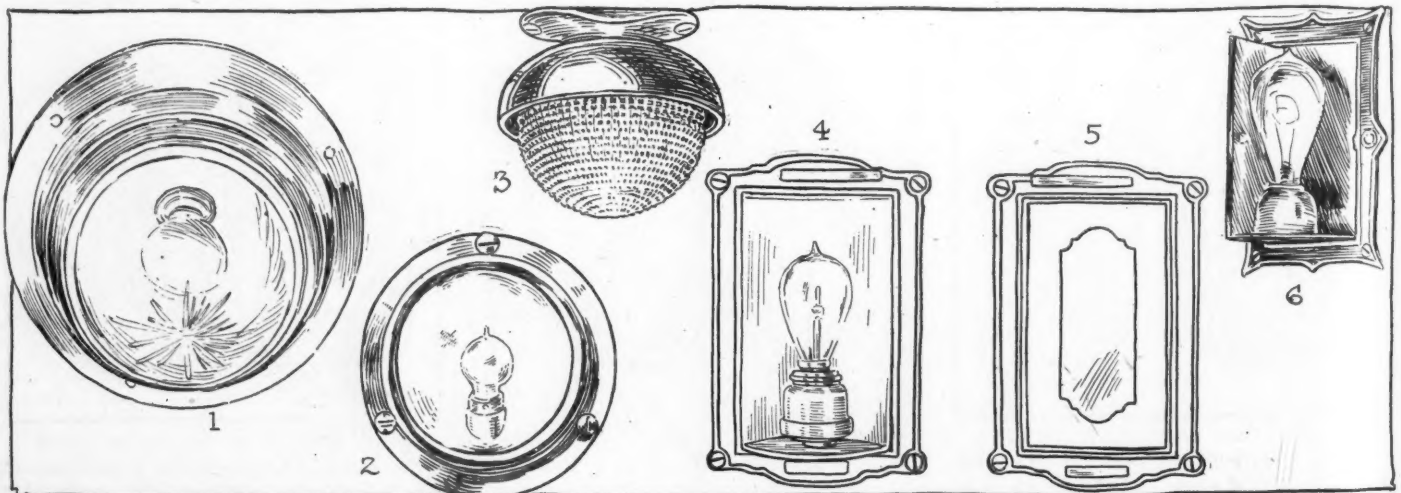
The design of car bodies largely determines the design of lamps, and as the torpedo type, or bullet type, harmonizes most perfectly with the simple and beautiful lines of 1912 cars, this design is by far the most popular.

The tendency among motor car manufacturers toward more simple lines in body design also led some of them to remove entirely the objectionable dash lamp brackets and lamps, in favor of lamps

inclosed within the dash. A lamp of this type fulfills all requirements of the law regarding its use as a signal and also has the merit of being less liable to injury, besides requiring little or no cleaning. A separate lamp of this type is included in the Guide company's line, whilst C. Cowles & Co. exhibits a combination dash side lamp and ventilator.

#### Bullet Type Popular

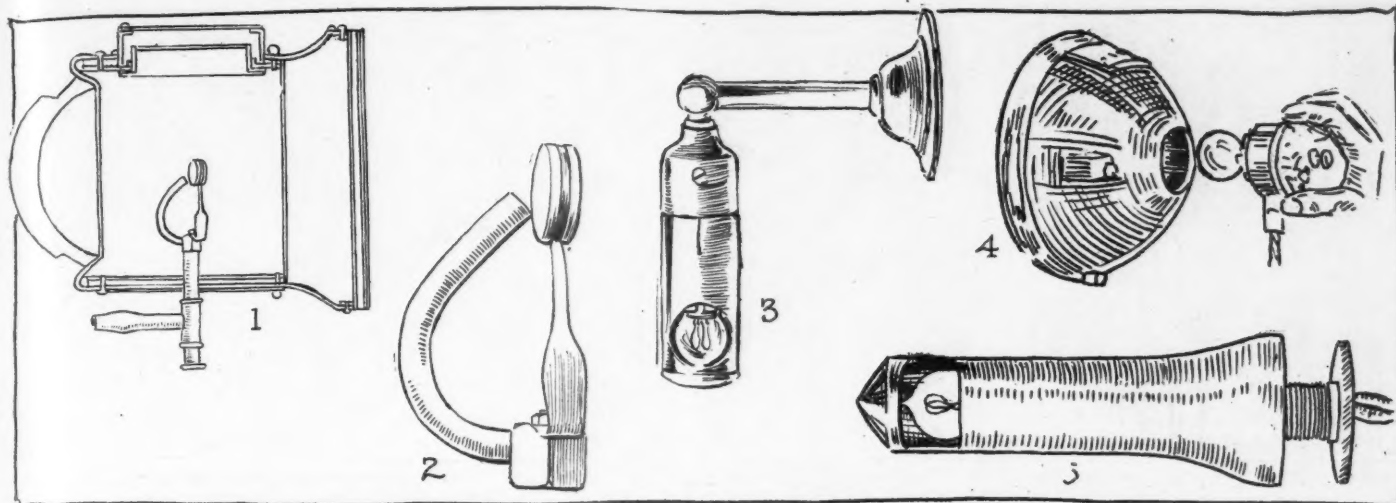
For city driving the bullet type of side lamps is becoming very popular because it often may be used instead of headlamps, while many of this type are employed as headlights on smaller cars. Electric cars need at least one strong headlight, hence most makers have brought



DOME LAMPS: 1—Alexander; 2—Guide; 3—Apleo

PANEL LAMPS: 4 and 5—Cowles open and closed; 6—Fowler





## USEFUL NOVELTIES AND FITTINGS FOR GAS AND ELECTRIC ILLUMINATION

1 and 2—Showing application and construction of Wunderbutton which is claimed to have advantages over ordinary design of burner; 3—Elba dash or speedometer lamp; 4—Star headlamp with adjustable lamp socket in removable block; 5—Aplco lamp for illuminating speedometers, voltmeters, clocks, oil gauges, etc.

out a style of lamp such as the Hartman or Fowler, shown on page 47, which are suitable for this purpose. Ornamental side lamps are not road finders and the driver of an electric car often must creep along because with sidelights only it is impossible to see holes or obstructions in the road.

There has been little change in the design of connectors and adaptors provided to convert oil and gas lamps into electric lamps. The devices that have been on the market for the past 2 years are remarkably simple and have been giving excellent service. Any standard make of gas lamp can be remodeled for electric lights by installing a parabolic reflector

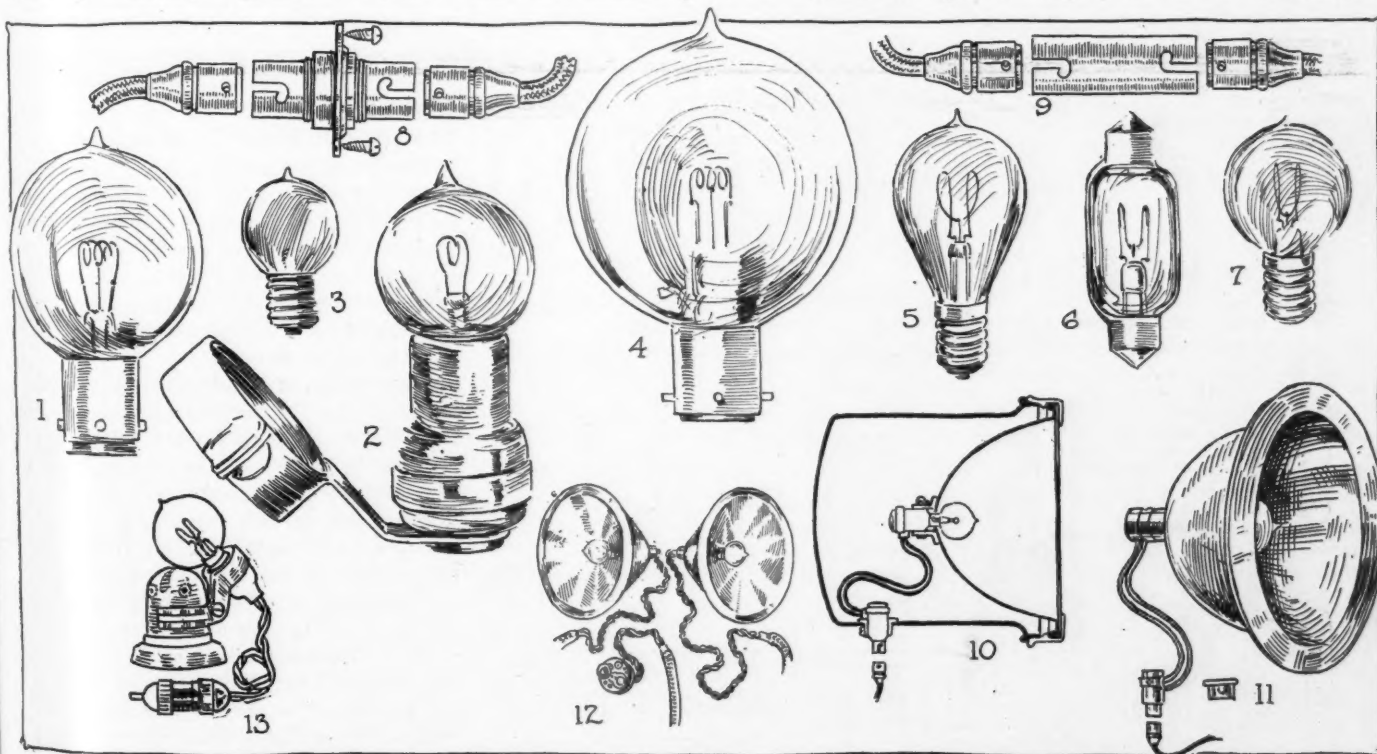
such as now is being made by practically all large lamp manufacturers. These reflectors may be fitted by simply unscrewing the burner or removing the tip, slipping the fitting over the gas tube or by screwing the reflector to the rim of the door. Wires from the lamp socket in most cases may be brought down through the gas tube, where the gas tube can be unscrewed.

## Converter Fittings

By means of the oil lamp fittings now on the market, an electric lamp also can easily be made from any oil lamp. The electric fitting when installed gives cleanliness and convenience worth far more than the nominal price of the fitting.

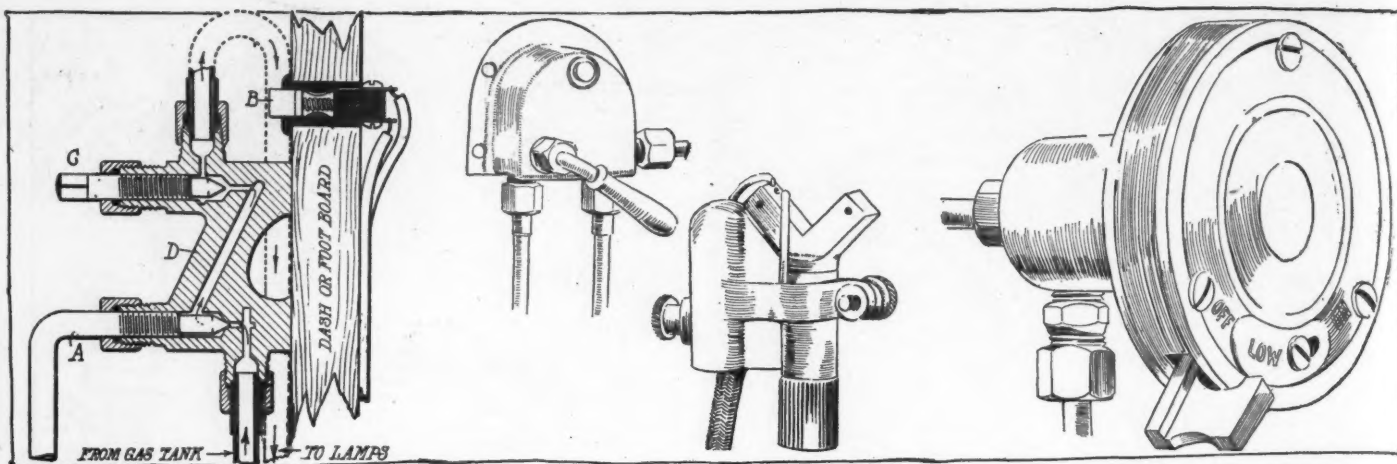
Some of these fittings are screwed into the oil fount and stand in the place usually occupied by the burner, and others are provided which are placed back of the oil burner, retaining the oil burner for emergencies. If the burner in the lamp does not screw in, but is secured by some form of bayonet catch intermediate fittings are furnished which will go into any oil fount and into these fittings will fit either the candelabra or Edi-Swan socket.

The candelabra and Edi-Swan sockets are the two types now in general use. The candelabra socket is the threaded type, whilst the Edi-Swan socket is a lug and groove design. The use of the Edi-Swan



## ELECTRIC LAMP BULBS, CONNECTORS, ADAPTERS AND CONVERTING REFLECTORS

1-3-4-5-6 and 7—Different styles and sizes of General Electric Co.'s lamps; 1-11 2-inch round style with Edi-Swan base; 2—General Electric Co.'s oil lamp adapter; 3—3/4-inch round lamp with candelabra base or connector; 4—2 1/16-inch round headlight bulb; 5—Pear-shape 1-inch bulb; 6—Tubular 5/8-inch bulb; 7—Round 1-inch bulb; 8—Elba dash-piercing connector; 9—Plain Elba connector; 10—Elba reflector in lamp; 11—Converter, reflector removed; 12—Rosen outfit for Ford cars; 13—Manhattan oil lamp adapter



SECTION OF INST DASH CONTROL  
Showing electric sparking button B, gas regulating valve C, and shut-off, valve A

THE INST DASH CONTROL MECHANISM  
INST GAS BURNER ATTACHMENT  
The entire system is shown below

THE PERKINS DASH CONTROL  
Which simultaneously turns on and ignites gas, or turns it down or out as desired

socket has shown a remarkable increase in popularity during the past year. This no doubt is because it provides a quick and simple means of attachment, while a chief advantage lies in the fact that the lamp and connector are locked in place and cannot work loose by vibration.

Several manufacturers of lighting equipment, including the K-W Ignition, A. W. Rosen, and Guide Motor Lamp Mfg. Co., have brought out fittings comprising a pair of reflectors, wiring connections, and a switch by means of which the head-

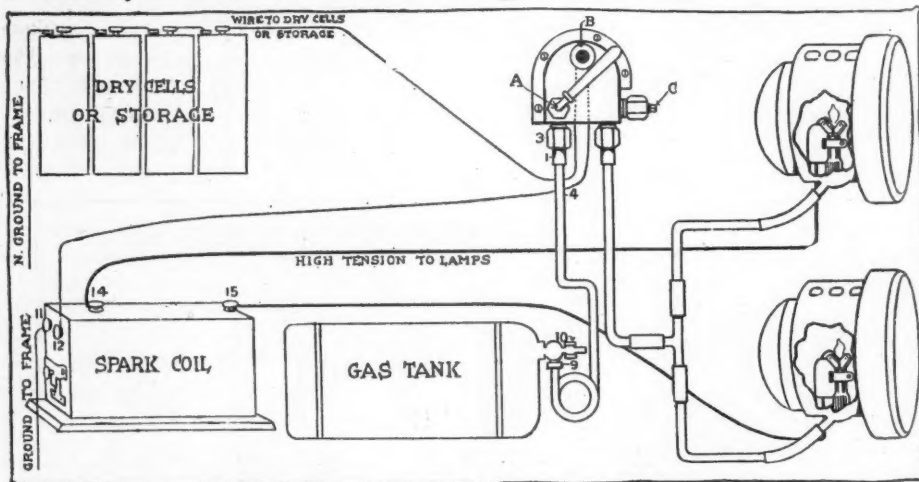
lights of Ford cars can be converted into electric lamps, with the current supplied from the magneto of the car. On Ford cars the magneto produces more current than is needed for ignition. The surplus has been found enough to operate two 12-candlepower lamps in the headlights. Thus having the most important part of the lighting system, namely, the source of current supply, Ford owners may remodel their gas headlights for electricity and do the whole job of installing, including wiring, in half an hour.

A most vital factor in successful electric lighting is the correct position of the lamp relative to the reflectors. Much light is wasted when lamps are not in focus. Therefore practically all electric lamps, especially head lamps, are provided with means for adjusting the focus of the lamp. Many of these adjustments are of an ingenious nature; those used by Grey & Davis, Vesta and the like being very accessible. To obtain correct focus, one must direct the light upon some upright surface such as a wall or board fence one or two car lengths away, then move the bulb forward and backward until the field of light is at its maximum brilliancy and is free from shadows. Whenever new bulbs are placed in reflectors the position of each bulb should be carefully adjusted. After correct focus is obtained the lamp bracket should be bent forward and toward each other until the main rays or shafts of light from both headlights strike the road at the same point.

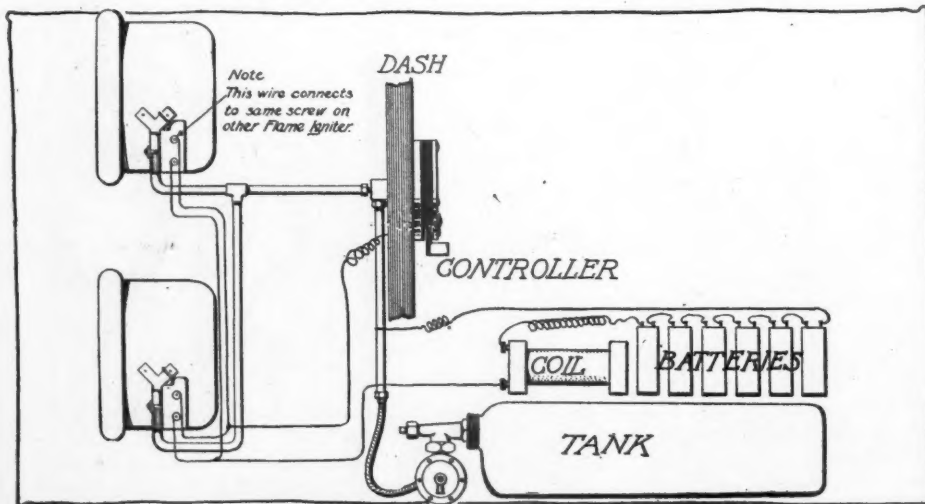
#### Plate Illuminating Tail Lamps

The experienced motorist knows that there is danger ahead for him that fails to comply with the law in regard to the illumination of license number plates, and most makers this year have brought out combination tail lights and license number plate brackets or lamps adaptable for illuminating these plates.

These lamps, of which the Grey & Davis, Elba, Adlake, Parker, and Couch & Seeley are good examples, are fitted with a clear lens for lighting the number plate and a red lens for the tail-light signal. There also are one or two new designs of signaling systems for application to the rear end of the car for the purpose of signaling following vehicles as to the intentions of the driver to stop or turn to the right or left. These signals in some cases, like the Neil or Ham design, shown on page 48, consist of a series of different colored lights, or lights differently arranged, which are operated by means of switches convenient to the driver's reach. One manufacturer, the Rose Mfg. Co., which makes the Neverout, has even gone so far as to include an auditory signaling device

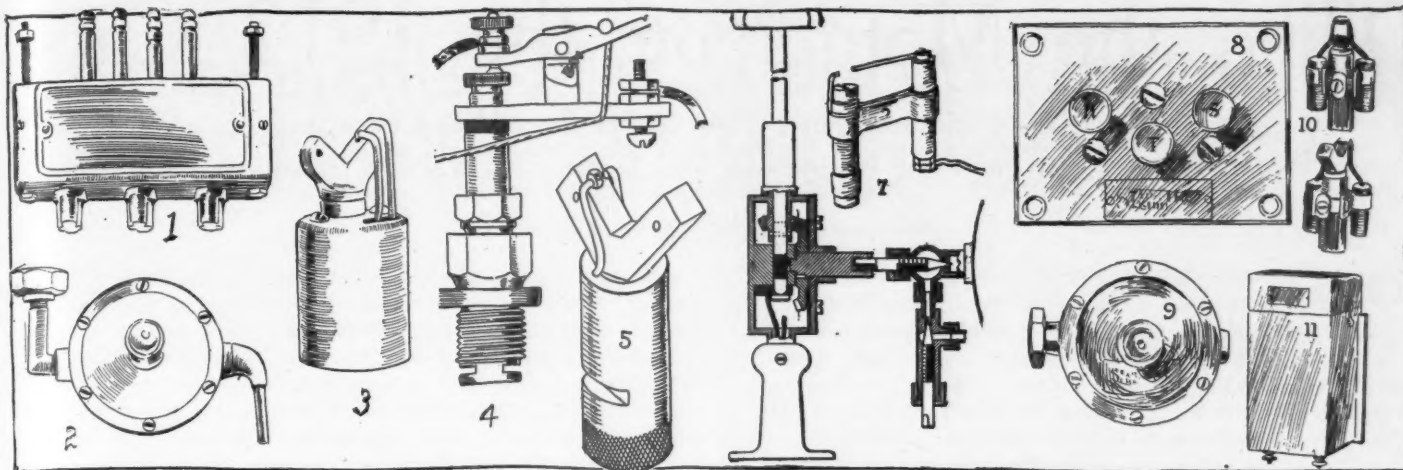


THE INST JUMP-SPARK GAS-LIGHTING SYSTEM COMPLETE



PERKINS MAKE-AND-BRAKE GAS LAMP LIGHTING SYSTEM





SHOWING PRINCIPAL FEATURES OF FOUR DIFFERENT GAS LIGHTING SYSTEMS

1—Dash switch of Mondex system; 2—Regulator on gas tank; 3—Lamp burner and make-and-break sparking device; 4—Matchless attachment to ignition spark plug, and burner 5 used therewith; 6—Elliott gas lamp ignition and gas control with burner attachment 7; 8—Start-lite switch; 9—Gas regulator for tank; 10—Burner attachments; 11—Spark coil

for the purpose of drawing attention to the intended changes in his signal lights.

#### Lighting Gas Lamps

Realizing the inconvenience of lighting acetylene lamps by getting out of the car to turn on the valve, then going forward and using matches, several makers have brought out simple outfits for lighting and adjusting the flame of gas lamps without stopping the car or leaving the seat. Several of these systems are illustrated herewith. Though differing slightly in design and construction, all of these systems but one are operated practically on the same principle. They comprise three types; one which ignites by means of a make-and-break spark in which only low-tension currents are conducted to the lamps; another somewhat similar system ignites by means of a jump spark for which more heavily insulated wires are used to conduct the high-tension currents, and the third system uses the motor ignition system for its ignition current. The jump-spark systems comprise a storage battery or set of dry cells from which a primary or low-tension current is obtained, a vibrating spark coil for transforming the current to high-tension, a device on the gas tank, or incorporated in a combination valve and switch mechanism on the dash, for regulating the flow of acetylene gas from the tank and a means generally incorporated in the switch or operating mechanism on the dash for closing the ignition circuit and turning on the gas.

#### Make-and-Break Systems

The systems in which a make-and-break spark is employed are similar except that they require no vibrator on the coil, but a make-and-break mechanism or magnetic vibrator mechanism must be mounted on the burner or incorporated therewith. Both of these types are illustrated. The third system above mentioned, in which the current is derived from the motor ignition system, is known as the Matchless and simply comprises connections whereby a spark plug may be short circuited and the

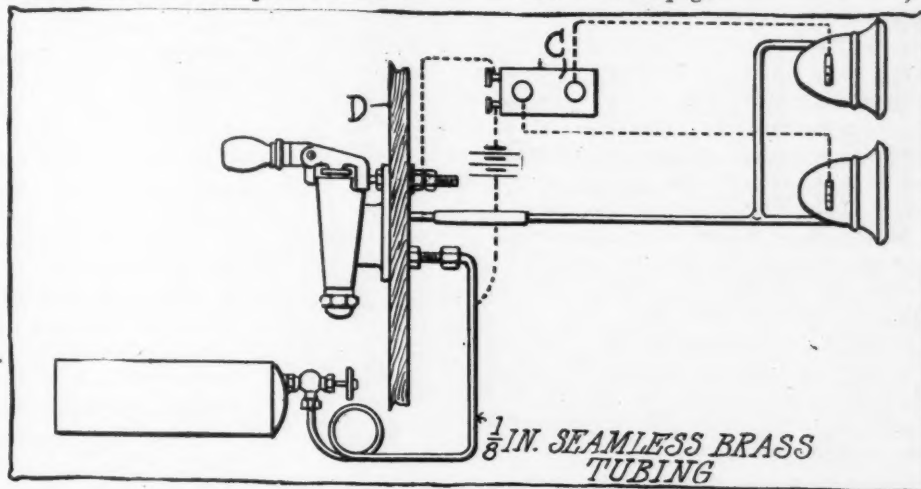
current led thereto directed across a spark gap arranged between two electrodes attached to the acetylene gas burner in a manner somewhat similar to that of the other systems.

#### The Golden Glow Mirror

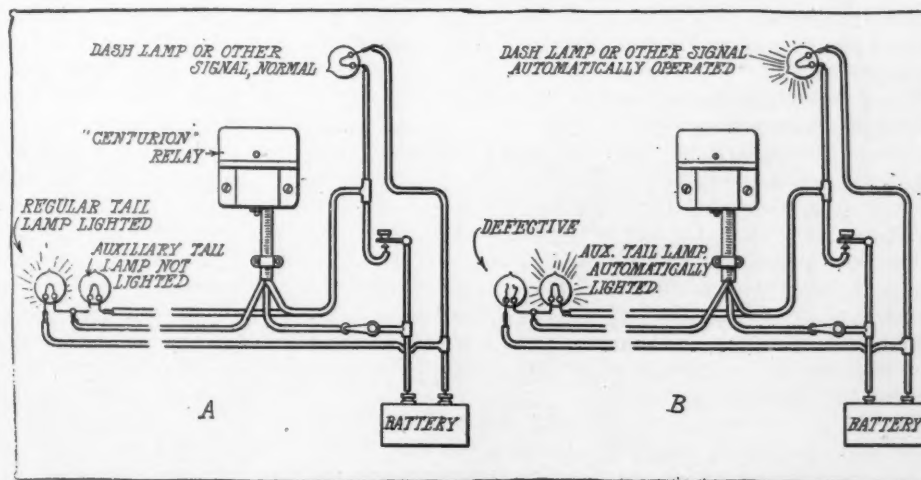
The Apleo Electric Co. has introduced an improvement in the form of a glass parabolic mirror, known as the Golden Glow mirror. In adopting this mirror, it is claimed, four important improvements were added to the Apleo electric head-

lights: An optically improved reflector was secured which not only projects the light to a greater distance, but diffused it better; the golden glow absorbs the ultra-violet rays.

The Dean Electric Co. has brought out the Centurion tail lamp guard, which is a positive telltale signal to indicate the lighted condition of the tail lamp. A wiring diagram of one system in which a lamp on the dash serves as an indicator is shown on this page.



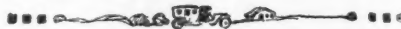
FLASH GAS LIGHTING SYSTEM; D REPRESENTS DASH, C, SPARK COIL



CENTURION TAIL LAMP GUARD— A, REGULAR LAMP LIGHTED; B, DEFECTIVE

# Oiling the Motors on the 1912 Cars

Count at the Coliseum Shows That 80 Per Cent Uses Circulating System, 10 Per Cent Force-Feed, and 5 Per Cent Vacuum Feed



OF all the different makes of motor cars on exhibition at the Chicago show, about 80 per cent has motors with circulating oiling systems; 10 per cent mechanical force-feed oilers or non-circulating systems; 5 per cent vacuum feed non-circulating systems, and perhaps 5 per cent of the number are in a sundry class of non-circulating gravity feed systems and those in which oil is mixed with fuel.

A circulating oiling system is one in which the oil supply is used over and over again; a copious supply being poured into and around the working surfaces and parts at all times and then gravitating into some suitable receptacle from which it is drawn and again sent to the working parts.

A non-circulating system is one in which the oil is fed to the bearings in as nearly the required quantities as human judgment can determine, and that which once leaves the source of supply returns no more.

## Vacuum-Feed Non-Circulating Systems

Vacuum feed non-circulating systems are systems in which the flow of oil from an elevated reservoir is restrained by a vacuum. For instance, in the Everitt, E-M-F and Flanders cars, when the oil in the splash compartments of the crankcase falls below a certain level, the openings or leads from the supply reservoir are uncovered, air is admitted through them into the supply tank, and the vacuum in the reservoir is destroyed until the oil level in the splash compartments has risen sufficiently to cover the openings in the tubes or leads; thus, the air no longer is admitted and the oil ceases to flow. The principle is the same as that employed in drinking fountains having inverted water bottles, or on the farm for watering chickens by means of an inverted tin can in a saucer, the can having a notch or hole at the height of the level desired in the saucer.

Among the cars that have non-circulating systems might be mentioned the Packard four-cylinder cars, the Rambler, Moline, Stevens-Duryea, Amplex, White, Buick model 29, Oakland, Cole and Cartercar.

Of all the cars shown, about 70 per cent has sight feeds or pressure gauges on the dash for the purpose of showing when the oiling system is in operation. This is a healthy indication of the reliability of the oiling systems of the remaining 30 per cent.

## Types of Oil Pumps Used

By far the greatest number of motors having circulating oiling systems are fitted with small gear pumps which draw the oil from the reservoir and force it either to the splash compartments or through ducts to the different bearings. These pumps generally are located externally near the bottom of the motor case or reservoir.

Two or three makers this year are using a centrifugal type of oil pump, one of which is employed on the Great Western. Plunger pumps operated by eccentrics or cams on the camshaft are used on a number of makes, among which are White and Abbott-Detroit which have two plungers, one for each splash compartment; Columbia, which has five plungers, four that force oil to the splash troughs and one that forces oil to the sight on the dash. There also are a few like the Hudson that have but one plunger for maintaining the circulation.

The Ford, Paterson, Krit, Imperial and one McFarlan model are examples of the flywheel circulating type of circulating system, in which the flywheel housing forms the

reservoir, and the oil which adheres to the revolving flywheel is thrown off into scoops or troughs by centrifugal force and conducted back to the splash compartments.

In the neighborhood of 25 per cent of the motors having circulating oiling systems either have internal or external leads that conduct oil to the main bearings of the crankshaft, and several go even further and conduct oil to the engine gears, the camshaft bearings, etc. The Packard motor has branch tubes from the main oil lead which conduct oil to each of the timing gear bearings, including that of the magneto; and the Mitchell has a lead to the clutch collar.

Adjustable splash basins or troughs are to be found on several cars this year, among which are included the Stoddard-Dayton, Stearns and Columbia-Knight motors, the Pullman, Kisselkar and Austin. In the Knight motors four leads automatically conduct oil to the sleeves when a speed of about 45 miles an hour is attained. The troughs of the Kisselkar and Pullman are adjustable from the dash, and the Austin adjustment is obtained by means of a lever on the side of the crankcase. The Amplex and Cunningham cars also have means on their dash boards of increasing the oil flow in their oiling systems, but no adjustable pans.

## Several Motors Have Drilled Crankshafts

Among the cars having motors with drilled crankshafts, through which oil is conducted to the connecting rod bearings, might be mentioned the White, Knox, Corbin, Oldsmobile and Alco. In the Knox and Oldsmobile tubes are secured to the connecting-rods which conduct oil from the lower to the upper or piston-pin bearings; while in the Alco the ducts are drilled through the rods themselves. In all of these motors, of course, there are leads to each of the main bearings.

Several cars this year have auxiliary oil supply tanks from which the running supply in the motor reservoir may be readily replenished by simply opening a valve and giving a few strokes to a hand pump. The Thomas has its auxiliary tank arranged inside of the chassis frame on the left side, under the body portion of the car. The Lozier has its auxiliary tank suspended from the right side member of the frame opposite the driver's seat, from which the handle of the pump incorporated in it may be easily reached. The auxiliary supply tank of the Packard is arranged at the side of the motor crankcase, and also has a small hand pump incorporated in it to force oil from it into the reservoir at the bottom of the crankcase. Several racy-type roadsters have large auxiliary oil supply tanks mounted on the rear decks behind the oil supply tanks, as on the National, Moon, Marmon and Velie cars.

Comparatively few makers provide only one or more petcocks near the bottom of the crankcase, to show when the oil level in the crankcase is right. Commendation certainly is due to such makers as produce the Stearns, Pullman, Thomas, Auburn, Interstate, Imperial, Abbott-Detroit, Haynes, Overland, Everitt, Reo and the like, which are provided with float-indicators that are easily visible without the assistance of a portable light.

In the same way are the makers of the American, Pullman, Chalmers, Packard, Pierce, Haynes, Marquette, Stevens-Duryea, McIntyre and a few others, to be complimented for the large and conveniently arranged filler nozzles which they have provided on their motors.



# Refinements That Tourists Appreciate

Designers Have Given Most Attention to Roadsters in Searching for Good Baggage-Carrying Space—Clearing the Running Boards



EXAMINATION of the motor cars now on exhibition at the show in Chicago reveals many new and interesting schemes for carrying extra baggage in and about the car. Though most manufacturers have given the subject no small amount of consideration, the tendency toward the elimination of all incumbrances from the running boards has made an increase in the space available for the stowing away of extra baggage rather a difficult problem.

Perhaps, the greatest increase in baggage-carrying space is to be found on the roadsters, most makers having brought out this year what is known as a touring roadster. In these cars, there no longer is a rumble seat on the rear deck, but this space either has been covered over to form a large baggage-carrying compartment, or a large trunk is arranged behind a large gasoline supply tank mounted immediately behind the seats. For examples of such cars with large covered rear decks, the Case, Knox, Oakland, Stevens-Duryea, Maxwell, Stoddard-Dayton and Firestone-Columbus, Ohio, Republic and Lexington cars, might be cited.

## Roadsters Have Capacious Rear Deck Compartments

In the Stoddard-Dayton, access to the rear deck is obtainable from the seat, the greater portion of the rear-seat cushion being mounted on hinges at the bottom which permits it to be swung downward from the upper edge. This compartment is large enough for two medium-sized suit cases. The Firestone-Columbus also has a similar compartment, smaller in size, but consequently more accessible.

Another excellent feature of this car, is an ingenious extra seat for a third passenger. This seat is a neat folding design which disappears below the foot-board; when raised it has its back rest toward the dash, and is very comfortable.

Many cars, including the White, McFarlan, Knox, Case, Pope-Hartford and Cunningham, have added hampers suspended from the rear end of the chassis, such as have been employed on the Pierce-Arrow, Thomas, and Columbia cars for some time. Trunk racks also have been added to the rear ends of many cars, and may now be seen on all Carter car models, and on the Stearns, Knox, Alco, and Oldsmobile.

As for pockets, there are pockets, pockets everywhere. The Locomobile, Knox, National, Franklin, Columbia, Cunningham, Auburn, Courier-Clairmont, Overland, Great Western and many others have pockets, or rather small compartments, between the front seats. The White, Pierce-Arrow, Amplex and Knox for example, have pockets in the fore-doors as well as in those of the tonneaux; while the Packard, Case and Abbott-Detroit have pockets behind the front seats.

## Special Compartments for Side Curtains

Heretofore, most makers have considered the rear-seat compartment a very suitable place for the side curtains, but it has been found that by packing them in with oil-cans, jacks, pumps, tire-tools and other such paraphernalia, they soon took on a most disreputable appearance. To avoid this the Locomobile has provided a special compartment under the floor boards of the tonneau, and the Thomas has a special compartment for them under and in back of the front seats.

Considerable extra space is and has been provided in the Oldsmobile for 2 or 3 years back, by making a long compartment out of the space between the running board and the frame on both sides of the car, the top of the compartment forming a second step.

IN order to enhance the clean and neat appearance of the fore-door body construction, many makers this year have brought out models in which the running boards are absolutely free from battery or tool boxes, acetylene tanks or generators, tires, etc.; and in the majority of these cases, the running boards have been cleared of these contrivances without having to place the above mentioned articles in seriously inconvenient places.

## Several Makers Have Clear Running Boards

While it should be possible for a motorist to keep the running boards of the car clear for city use, facilities also should be provided for carrying extra baggage upon them in touring. In the city one rarely requires an extra casing, and it would seem that a long flat compartment under the front seat and tonneau floor, accessible from the rear end of the car would be very suitable for this purpose. All of the tools required might be carried in the mud-apron compartments between the frame and running boards. The running boards, however, should be exceptionally strong, so that long narrow but capacious trunks could be conveniently mounted upon them for touring purposes. Unusually large running board trunks are on exhibition on one of the Locomobile models at the Chicago show.

Examples of the clear running boards may be found in models of the Locomobile, Matheson, Knox, Austin, Interstate, Overland and Regal.

Other makers, however, who have given the subject consideration, have concluded that inasmuch as entrance and exit to and from the car generally is made but from one side of the vehicle, the clearing of the running board on the left side of the car should be more practical. The Pierce-Arrow, Winton, Rambler, Corbin, Garford and Amplex companies have models that might be included in this list.

In order to obtain absolutely clear running boards, the Locomobile has a substantial tire rack neatly arranged at the rear end of the car; the acetylene gas tank is suspended from the rear end of the chassis, and there are compartments under the tonneau floor for side curtains, tools, etc. The Matheson and Case cars have spacious compartments concealed behind the mud aprons between the running boards and the side frame members, for the reception of tools, and sundry articles, and tires are carried at the rear.

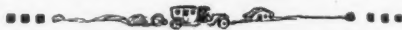
## Compartments in Mud Aprons

A Knox fore-door design also has compartments in the mud aprons, one of which contains the acetylene tank, with a long rod provided for attachment to the key of the tank, so that the gas may be turned on conveniently, from the front end of the car; this car also has an unusually large combination tire and trunk rack at the rear. In the Austin an unusually large space is obtained under the rear seat by adding a small extension to the rear; this compartment will hold two extra tires and much sundry equipment. The practice of carrying the battery under the tonneau floor has become quite popular with several makers this year, among whom may be mentioned, the Austin, Amplex, Alco, White, Abbott-Detroit and Great Western.

Several makers have used the space behind the mud aprons to good advantage, in addition to those above mentioned. The Pierce cars have cleared the left running board in this manner, also the Columbia limousine has a large battery in such a compartment on the right side. Tools are placed in a compartment on the left.

# Making for Comfort in Winter Time

Developments Include Slide-back Side Curtains and Semi-Limousine Type of Top—Shaft-Drive as Found on Electrics



TO meet the demand for greater winter comfort there have been a number of developments during the past year in the line of greater comfort at much lessened expense, and greater accessibility and handiness in the matter of tops and side curtains. Few people are willing in these days to lay up their car for the winter, and in the past have made shift with top and glass windshield, with side curtains as an extra for a special kind of weather. Most types of side curtains, while comparatively successful in keeping out the elements during running moments, were more or less of a nuisance when it came to getting out and in, this being accomplished only by much fumbling about to find the proper catch or by the unbuttoning of a row of buttons unhandily reached, to say the least. Comfort of an inclosed body is necessary in winter. That it can be had is proved by the expensive limousine. Buyers nowadays are demanding more of the comforts of the limousine at less cost.

## Side Curtains That Slide

The first step towards this development is shown in some of the new side curtains which slide back very handily or fold like a fan, all of this being done with but little more trouble than of opening a door. At the same time there is more window space than in the older types of side curtains, all of which is an advantage.

A still later development is an attachment for converting an ordinary touring car into a semi-limousine. This idea, it is claimed, had its beginning in Chicago. With this form of demountable device one has a maximum of comfort at a minimum of expense. The framework is ordinarily made of wood covered with imitation leather, in some cases of special make. The inside is lined as in an ordinary limousine, and the windows are of glass, including those in the doors. This is a great advance over the idea of side curtains with tops, and the arrangement seems to fill a field about half way between the side curtain idea and the limousine body at a proportionate expense. A top of this kind for a five-passenger car weighs about 175 pounds, whereas an ordinary top would weigh in the neighborhood of 100 pounds. For a seven-passenger car the weight is about 190 pounds.

A top of this kind is made by the London Auto Supply Co., of Chicago, which claims to be the originators of the idea and which also makes a coupe body attachable to suitable roadster and other models. The limousine type is made to fit any touring body, a special quality of pantasote imitation leather being used for the outside.

## The Semi-Limousine Type

The Springfield Metal Body Co. also is making an attachment for the winter conversion of a car, while another firm in the field is making a metal framework for side curtains fitting over the door so that the unbuttoning process is unnecessary.

More of the demountable winter ideas will undoubtedly appear subsequent to the demand which has already been shown, giving the man of ordinary means the greater possibility of enjoying the use of his car during the winter.

There is no doubt but what more cars would be used during the winter months if it were not for the exposure to which the motorists are subjected when riding in an open car. Lately the demand for tops has increased and the new styles now are such that motorists can enjoy the comforts of a limousine by the fitting of their cars with these demountable semi-limousine tops.

OF the ninety electric cars listed this year 54 per cent is quoted as having shaft drive, 22 per cent chain, 16 per cent optional, 7 per cent gear driven, and 1 per cent driven by the worm gear direct. Among the factories, however, separate from the list of particular machine models which they build, 45 per cent is building only shaft drive, 30 per cent give option on shaft or chain, 10 per cent manufacture chain drive alone, 10 per cent spur gear drive, and 5 per cent worm.

## Analyzing Drive Situation

When one comes to analyze the so-called shaft drives it is found that in a large number of cases that the chain still is present in one form or another, although the final drive usually is by shaft. This divides the shaft drive proposition into a number of classes. There are those with the low-speed type of motor and with direct shaft-drive, as in a gasoline car, the rear axles in some cases being of standard types. Ordinarily, however, a high-speed type of motor is used, this necessitating a lowered gear ratio between the motor itself and the shaft which runs to the rear axle. In most cases this reduction is obtained by means of a silent chain inclosed at the motor end. In some of the larger cars this chain is at the axle end arranged in and forming part of the rear axle and differential casing. In some of the cases it is hard to see why the shaft drive has been adopted, excepting as a matter of public demand. Of course noise and adjustment is eliminated to a certain extent, but, with some arrangements, at a great loss of efficiency.

The methods of hanging the motor are interesting. Some hang it on a cradle hung on a subframe and arranged to swing on its center as well, thus eliminating universal joints in the shaft. Others support the motor on a subframe with two universal joints in the shaft, while still others use a construction which enables them to accomplish the same result with but one universal joint. Where the motor is fastened on the subframe three-point suspension is used generally. Where three-quarter elliptic springs are used in the rear radius rods generally are done away with, the thrust being taken through the spring itself.

## Classifying the Field

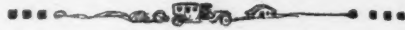
Among the electric cars shown in Chicago the Detroit uses shaft drive direct without any silent chain or other reduction; the Baker has used shaft drive for 9 years, now fitting the silent chain for the first reduction near the motor. The Ohio company has used shaft drive for 4 years, having a similar silent reducing chain-gear at the motor. The Standard, a new arrival this year, is using a shaft drive with a spur and bevel combination reducing gear in the rear axle housing. The Woods company has adopted shaft drive this year, using herringbone gears at the motor for the first reduction, the rear axle being full floating and a one piece forging. The Borland electric has adopted shaft drive this year with silent chain reduction. The company still makes a chain-drive car. The Hupp-Yeats has the motor mounted directly in front of the axle with bevel gear reduction. The Waverley is driven with spur gear and a cross shaft.

Rauch & Lang use shaft and silent chain, having employed this during the past year and a half. The new Flanders is driven by a worm gear, the ease of its running being demonstrated at the show by a model in which the whole rear axle with its worm is turned by the breeze from an electric fan. The Broc firm gives option of drive.



# Late Body Styles and Deep Upholstery

**Straight-Line Effects Aimed At—Scuttle Type of Dash Popular—  
Luxury Secured by Easy Cushions—Comfort in the Tonneau**



THE visitor at the show, taking a special note of bodies as exhibited, notices at once the predominance of straight-line effects in touring cars with a strong leaning toward the scuttle type of dash. In gasoline cars there is almost no exception to the straight-line type, although in electrics there are a number of firms which prefer curved lines and colonial types. Practically the only curved lines seen in the gasoline section at the show are on roadsters.

The fore-door type of body is practically universal on the floor, and in spite of the fact that there was some hue and cry at its first adoption by those who claimed such an arrangement would be too hot, some of these very makers who have since adopted the fore-door type have added further enclosure in the form of a scuttle dash and yet have failed to afford means of ventilation. Scarcely half of the scuttle type bodies have arrangement for ventilation.

The increasing use of center-lever control and left-hand steering has led to a slight increase in some cases in the width of the body in front, the tendency toward straight lines having something to do with this as well, so that, as a rule, bodies are the same width for the whole passenger distance. Taking an average from thirteen separate exhibits selected at random on the main floor of the show, forty-seven cars out of forty-nine were of straight-line type, thirty-five were fitted with the scuttle dash and only seventeen of these thirty-five with ventilators, showing well the tendency of the year among body makers.

## Details Now Given Consideration

Details are being given more attention this year than formerly. With the introduction of electric lighting, side-lamps are inclosed in the dash in the Olds, Winton, Marmon and others having bodies arranged so that more foot room is allowed. Door handles are being fitted which work from either inside or outside, while doors are being put on with the hinges forward; the idea being that if carelessly left open the door will not rip off if it should happen to strike an impediment, but will merely slam shut. Where this has been accomplished without interfering with the convenience of the passenger climbing in and out, a certain advance has been made.

Bodies on higher-priced cars are, as a rule, made of wood excepting in special cases, the cheaper cars tending more toward the all-metal construction. The lower-priced bodies of this year present a much better appearance than those of last year, more attention being paid to finish and completeness of detail than ever before.

In the matter of general appearance distinct improvement is shown in the comparatively few bodies of gaudy appearance which are on view. The blatant combinations and in-harmonious color schemes of former years are conspicuous by their absence, refinement of body line having brought with it a refinement of finish and detail in keeping with a high stage of development. Several cars are shown, it is true, which make a showy appearance on the floor, but which would be very impractical in actual use, but these, even, are not as discordant as in previous years, the great leaning being toward the intensely practical in all lines. There is but comparatively small demand in these days for a car of a color which demands a gown to match every time milady would take a ride. There is a tendency toward insulating the bodies, as well, from the steel chassis by rubber or felt cushions or strips, and eliminating squeaks.

WOMAN is coming into her own in motor car construction. Now that to a certain extent all that can be desired in the way of speed, power and reliability is offered to their brothers, manufacturers are directing efforts more than at any previous time toward those refinements that mean so much for the comfort of the fair sex. Probably the strongest indication of this trend is in the matter of upholstery, a department of which the ordinary male motorist knows little and cares less.

The chief manner in which this trend manifests itself is in the wider and deeper cushions, greater thickness of the upholstering, and higher sides and backs. This is particularly evident in the tonneau, a portion of the car in many instances devoted solely to the women of the family. The practice which was noticed in one or two instances last year of providing the inclosed portions of limousines with cloth upholstery while the driver's compartment had the more durable leather, has been extended this year to include touring cars. "For Mother" is the way the Locomobile salesman puts it in calling attention at the shows to the touring car with a rich Bedford cloth tonneau and plain leather or corded front seat.

## Seats Are Considerably Deeper

In general the seats have been made much deeper from front to back than they have been in previous years, and at the same time the thickness of the upholstering has been increased from 1 to 2 inches. All the higher priced cars show cushions from 9 to 12 inches and the cars of lower price are following in their lead with cushions at least 7 inches in thickness. This is the greatest depth of upholstering that was to be found on the highest priced cars a few years ago. The tendency to deeper and thicker seats is evidenced in the front seats, although not to the extent that is noticed in the rear.

This change toward more comfortable cushioning of the seats has not been merely equipment of the same bodies with greater depth of upholstery. It has required, in practically every instance, almost an entire re-design of the body, and that the work necessitated by the change is not evident is a credit to the body designer's art. To increase the cushion thickness and at the same time increase the height of the sides and back without destroying the symmetry of the body lines means that the seat base must be lowered several inches. In most of the cars the upholstering of the back and sides is carried a little higher than the body itself so that an extra roll is given at the top.

## Upholstering on the Cars

So far as the materials with which the upholstering is covered is concerned there is an increasing tendency toward the use of such materials as whipcord and Bedford cloth. Broadcloth, while holding its own in the field, does not seem to be increasing in popularity. Leather, of course, is the mainstay and shows this year a greater versatility of treatment. One of the Franklin limousines, for instance, is finished in purple chrome leather of a velvety appearance and texture, and is bordered in silk brocade. A Winton limousine is shown in brocaded Bedford cloth.

A Marmon opera coach body made by Dennison has cushions 12 inches in thickness covered with a neutral colored brocaded French cloth so that dust will not show on it. A unique feature of this coach is that the chauffeur's seat is in the form of a swivel arm chair while a folding extra seat is provided beside it.

# Tire Goods Are a Feature of the Show



AMONG THE ACCESSORY EXHIBITORS IN NORTH END OF COLISEUM BALCONY

**W**HAT the year just past has brought forth in the field of minor accessories for the motorist and the car it is too early in the new year to determine with exactness. Tire supplies are receiving more attention than ever before, as most owners recognize that early attention to tire derangements means increased life. Some of the tire sundries are described below.

**Interlock Inner Tire**—The Double Fabric Tire Co. is producing an innerlining for the prevention of punctures and blowouts. The interlock inner tire is a complete reinforcement but is not an inner tube. It is now made endless so that the troublesome end joint is eliminated. It has double-pressure lock flaps which lock the interlock into an inside tire so that it will hold even though the outer casing is broken. A special type is made for electric car service and has a special rubber tread and insertion for extra high resilience. There is also in this line an endless inner shoe, open-joint reliners, emergency patches and outer boots.

**Voorhees Tire Supplies**—Among the tire supplies made by the Voorhees Rubber Mfg. Co., the feature is an Ideal repair

## Protectors and Emergency Boots in Evidence—Blow-out Patches and Repair Kits Find Favor with Motorists

kit. This consists of a complete outfit of tire repair materials and findings. In addition there is an outside tire boot, an inner casing patch, a can of dough gum for cuts in the tread, and so on. The whole outfit is put up in a small can which can be easily packed away in a tool box. The company also makes a line of inner casings and reinforcing sleeves. The Ideal inner casing is made with several plies of tire duck and the ends are scarfed and held in place by the flaps. It is provided with short flaps on one side which are held under the rim to prevent creeping and buckling, while on the other side there is a protecting flap to take the place of the floating flap sometimes necessary in a casing.

**F. & S. Ball Bearings**—The F. & S. ball bearings are a German product manufactured in one of the largest ball bearing

factories in the world. They are marketed in this country by the J. S. Bretz Co., and are made in many styles and in practically all standard sizes. One of the features of most widely used designs in motor car construction are the F. & S. single and double row annular ball bearings. In these bearings the patented F. & S. cage is employed which permits 95 per cent of the ball race to be filled with balls and at the same time guide each ball separately and independently so that they cannot rub against each other, thus reducing friction to a minimum. The standard F. & S. single row annular ball bearing consists of an inner and an outer ring, a set of balls between the rings and the patent cage made of a special alloy, placed between the balls. The F. & S. double row annular ball bearing is of similar construction except that the separator is of a different design, twice as many balls are used in it and it has twice the load carrying capacity of the single race. The F. & S. annular bearings never require any adjustment, it is claimed. The balls are introduced in assembling the bearings through filling slots whose size is a little less than the diameter of the balls to be



introduced, so that the balls are forced between the two races under pressure and in fact by virtue of the elasticity of the materials. The shallow filling slots are not so deep as the races, and are inclined at an angle to the races, thus attaining a smooth continuity of the race throughout its entire circumference.

**Selbach Tire Repairs**—The tire supplies made by the Selbach Rubber Co. include an outside boot for protecting small cuts in the casings. This is called the D. B. C. and is made of three or four plies of 18-ounce duck-beveled on the edges to secure perfect fit. Inner sleeves of both the single and twin-sleeve type are produced for remedying blowouts or keeping the old tires in service. There is in addition a line of self-curing no-cement patches.

**M. & M. Cement Doh**—The M. & M. Mfg. Co., in connection with a complete line of tire repair supplies, is featuring a new product for repairing cuts in casings. This is called the M. & M. Cement Doh and is designed to be kneaded into the casing or tube in case of injury to prevent the entrance of water and dirt. It is claimed by the manufacturers that once this preparation is placed in the cut of the tire it becomes practically a part of the casing and impossible to come loose.

**Woodworth Treads**—Woodworth treads, made by the Leather Tire Goods Co., are

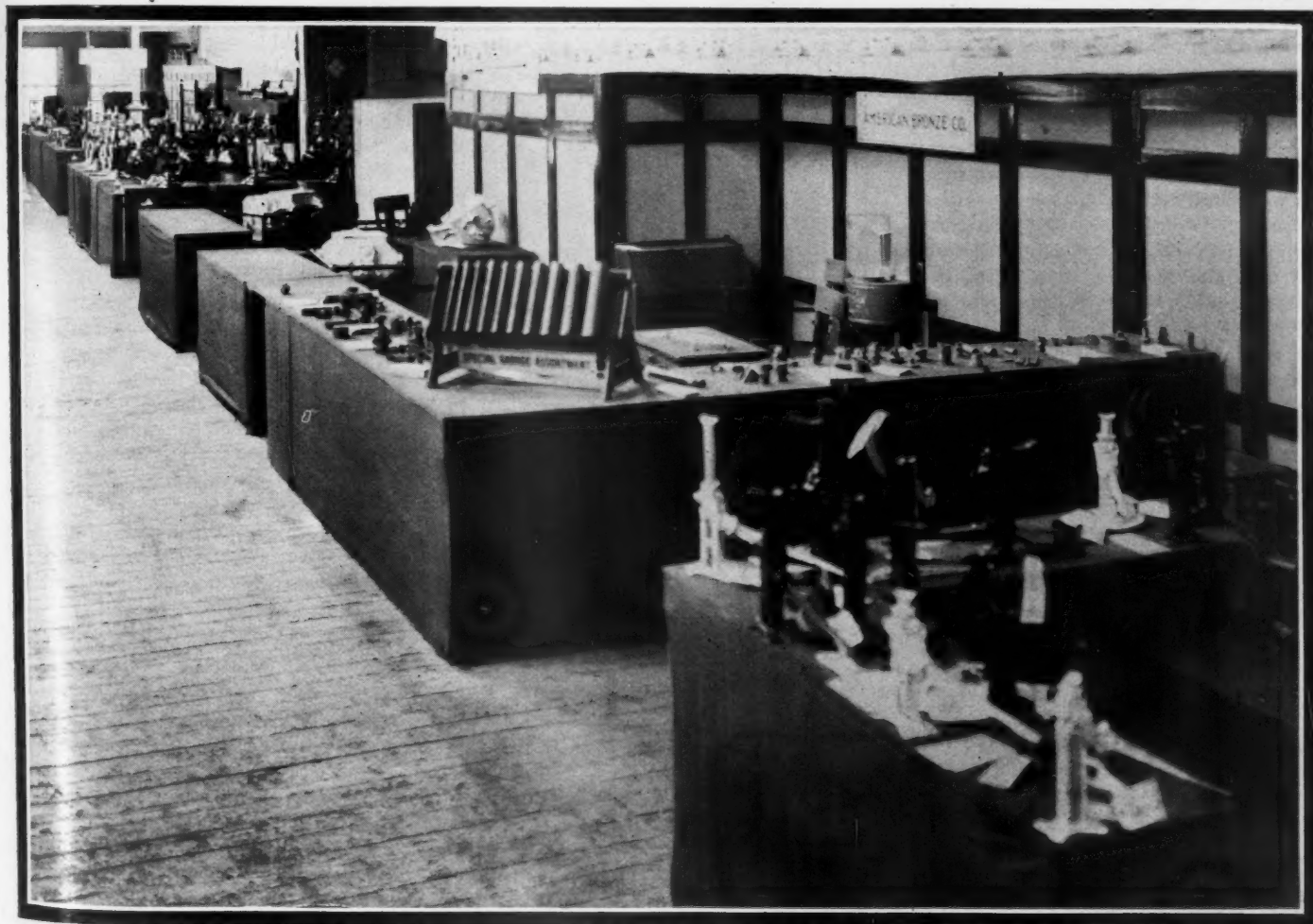
tire protectors made of chrome leather studded with steel rivets. The treads are held on the tire by circular rings on each side. There has been a slight change in the method of connection in these treads during the past year. The springs instead of being connected by turn buckles as previously are connected by hooks to the ends of coils which hook into each end of a link plate fastened to the side of the tread. A tool is furnished which draws up and hooks the springs in one motion. The leather is finished by a new process which prevents it from hardening or rotting with use and the rivets used on the middle portion of the tread have the heads tempered to extreme hardness so that they give much longer wear on the macadam roads or pavements. In the Kant-Skids, the side chains are connected by lever hooks instead of with a snap as employed last year and the coil spring adjusters are attached to the side chains which automatically adjust the Kant-Skids on the tire. The other goods, consisting of repair boots and emergency straps, are the same as have been marketed previously.

**Essex Tire Repairs**—The Essex Rubber Co.'s line of tire supplies consists of a tire sleeve with a single flap which is made in five-ply strong friction fabric vulcanized, which locks on one bead of the rim to prevent creeping. There are also blowout

patches made in two sizes for emergencies, one style without flaps and another style of seven-ply fabric with double flaps. One of the features of the line is an outside hook-on patch for emergency repairs such as blowouts or rim-breaks. This is designed to be snapped on over the casing and requires no mechanical attachment except for the hooks under the edge of the rim.

**Tirenex**—The National Rubber Co. is marketing a liquid rubber dressing for tires under the name of Tirenex. This is a coating that penetrates into every crevice in the tire and waterproofs the fabric in order to prevent decay. It is recommended by the makers particularly for coating extra tires or tires on stored cars, as it is intended to prevent decay and disintegrating so common in idle tires. It is made in both white and gray and is marketed ready to be applied with the brush. The newest product in this line is called Leakanot. This is a pure rubber compound for waterproofing purposes and can be used on caps and gloves, rubber coats, etc. It is made in brown and black colors and is said to make leather upholstery or other surfaces treated look like new.

**Young Tire Supplies**—The motor car specialties manufactured by O. W. Young include a line of tire repair supplies consisting of a complete repair kit in a conve-



ARRANGEMENT OF ACCESSORY BOOTHS IN SOUTH END OF COLISEUM BALCONY

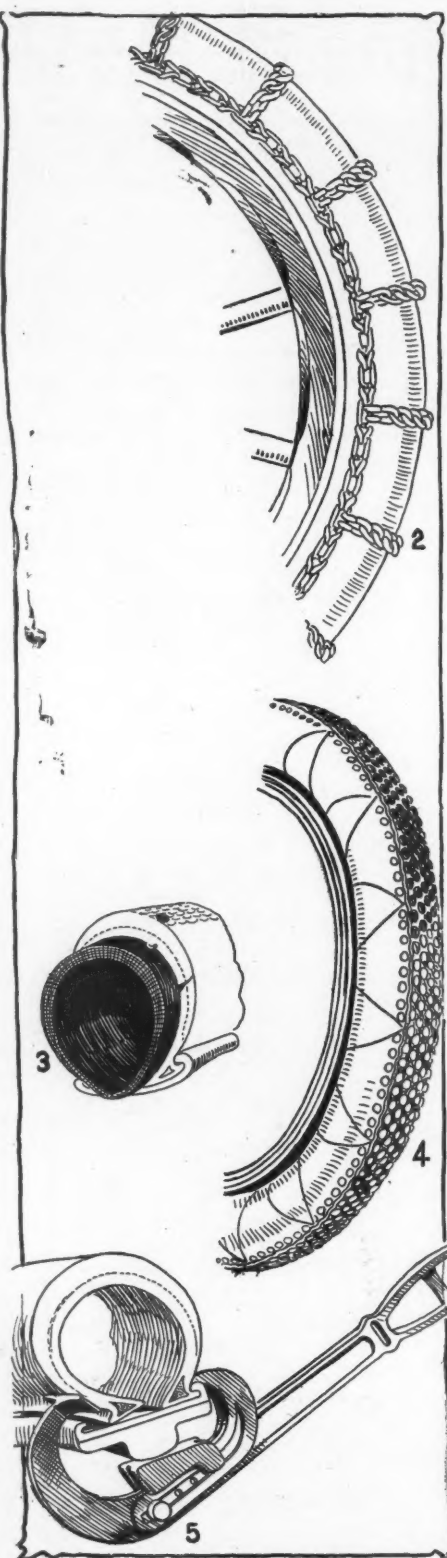
nient case for the tool box, a casing filler called Fill-gum for repairing cuts in the casing, blow-out patches, and inner and outer sleeves. There is also a line of oils and greases and a soap particularly prepared for washing motor-car bodies.

**Twentieth-Century Tire Protector**—The Twentieth Century Tire Protector Co. is producing a puncture proof, non-skidding protector manufactured from imported Swiss leather, which completely covers the tire. It is attached to the clincher rim by a patent clip device which makes it fit perfectly. The tread is studded with steel rivets to prevent wear. In addition to this there is an emergency patch of the same design as the protector and a line of blow-out patches.

**Weed Chains**—Anti-skid chains of the Weed Chain Tire Grip Co. show the same features in design and construction for this year as in the past. The chain consists of a strand passing around each side of the tire. The two side strands are interconnected at short intervals by cross chains. On the rear wheel these provide traction on muddy roads or slippery streets and prevent skidding; and on the front wheels provide easy steering through deep sand, mud or snow.

**Oliver Jacks**—The Oliver Mfg. Co. has brought out two new jacks for 1912. One of these is the new model of the Peerless jack, which is heavier in construction than the old-style Peerless and has a more substantial base, which has been arched to prevent tipping. The levers have been increased somewhat and the lowering device has been simplified so that now it lowers by simply turning the handle and can be used for pushing as well as lifting. Also, the hollow swivel top will catch under a bolt or nut without danger of slipping. One of the most important features is an attachment for loosening and removing tires. This is a U-shaped affair which, in connection with the jack and the handle, is said to remove the most troublesome tire. The bracket is hooked on the jack and placed between the spokes to push the tire off, or over the tire to pull it off. Another new jack in this line is the new Sampson designed for general use in the garage. It is designed to lift on the down stroke only and trips by turning the handle to the extreme height or can be lowered notch by notch with reverse movement without working the pawls by hand as in the old-style Sampsons. The standard has three brackets, giving it exceptionally large lifting room.

**Gemco Tire-Saver**—For the purpose of taking the weight of the car off the tires when in the garage a light type of jack known as a tire saver has been produced by a number of manufacturers. One of these is the Gemco, made by the Garage Equipment Co. This jack has a ratchet



TIRE CHAINS AND PROTECTORS

2—Weed Chains; 3—Interlock Inner Sleeve; 4—Twentieth Century Protector; 5—Sick Demountable Tire Tool

feature which gives it instant adjustment to any height of hub or axle without the removal of bolts or cotter pin. It is made of malleable iron and weighs 8 pounds. The ratchet adjustable section is supplied with a strong top which allows the jacks to be set in the necessary position under the hub or under the axle. A leather-faced saddle is supplied to prevent the hub from being scratched.

**National Blowout Patches**—The Na-

tional Motor Supply Co. manufactures a blowout patch for permanent repair of blown out or rim-cut casings. These are made in three styles, a beadlock patch, a vulcanized pad and an uncured patch for minor faults and cracks in the fabric.

**Combination Jack and Pump**—A device which combines the features of a jack and tire pump is called the Werner-Service Jackpump, made by the Werner-Service Mfg. Co. The jack is of the ordinary ratchet type and mounted upon it is a double piston compound V-type air pump. The latter is operated by a swinging hand lever with a handle high enough so the pump can be operated by a person without stooping.

**Brown Impulse Tire Pump**—The leader of the line of motor specialties of the Brown Co. is the new impulse tire pump, which is designed to be screwed into the cylinder head in place of one of the spark plugs. The operation is on the triple expansion principle, in which a compound piston operated by the compression in one of the cylinders pumps air under pressure into the tires. The air in the low-pressure chamber acts in the capacity of a return spring. To eliminate the back pressure in the tire valve an adjustable pin is provided in the hose coupling. It is said it requires from 1 to 4 minutes to inflate a tire, depending on the size and pressure desired.

**Ten Eyck Automatic Pump**—The Auburn Auto Pump Co. is marketing a gear-driven or direct-connected air pump under the name of Ten Eyck. The pump is put into action automatically by the back pressure of the air in the tire except in cases where the tire is entirely deflated, when pressure on the clutch lever will start it. The back pressure in the tire forces a small piston at the top of the pump outward against the clutch lever holding the clutch into engagement so long as the hose is connected with the tire. Detaching the hose from the tire allows the pressure to escape and the clutch to release automatically. The pump is of the single-cylinder type, the piston of which is operated by an eccentric. The direct-connected model can be applied wherever there is 3 inches of space available on the engine shaft for mounting. A feature of this line is a pneumatic jack designed to operate by compressed air in connection with a Ten Eyck automatic tire pump or any other source of compressed air.

**Bastian Tire Pump**—A two-cylinder opposed power pump manufactured by the General Utility Co. and called the Bastian is designed to run by friction against the flywheel or by gearing to the shaft. The pump is put in operation by means of a brass thumb screw on the side of the car. An oil filter is provided by which pump-





ing of oil into the tire or hose is prevented.

**H. M. S. Tire Pumps**—The Hartford Machine Screw Co. is marketing a line of air compressors for connection to the engine. In these the movement of the piston is obtained not directly from a crank or eccentric but by using the toggle joint principle. The chief advantage claimed for the system is that the stroke of the piston is doubled for a given throw of the crank. It is claimed that at 550 revolutions per minute a 36 by 5-inch tire can be inflated to 85 pounds pressure in less than 3 minutes. The feature of this line is a combination of water pump and air compressor. The water pump is of the rotary type and provides the circulation for cooling the engine. The air compressor in the combination is idle when not in operation. Overheating of the compressor is eliminated because the compressor cannot become hotter than the water circulating around it. This is also designed for compressing the air for starting the engine, in which case it is equipped with a clutch controlled from a pedal.

**Mayo Spark-Plug Pump**—The Mayo Mfg. Co. has brought out a new spark-plug pump for tire inflation. It is so small and compact that it can be carried in any tool box. The pump inflates a tire with air and is adaptable for use on all four-cycle motors of two, four or six cylinders. It is instantly attached for use by removing a spark plug from the most convenient cylinder, substituting the pump, and running the motor at a slow speed. The pump is noiseless in operation and rapid, requiring only 3 or 4 minutes to inflate the largest tire.

The pump is designed on the compound principle by which the air is compounded to high pressure into the upper cylinder and forced to the tire by the pump piston which is operated by the engine cylinder. All working parts are very substantially designed, the piston being equipped with rings which insure the user long service with no other attention than furnishing a small amount of oil at times.

**Kellogg Power Pump**—The Kellogg Mfg. Co. is producing a four-cylinder air pump designed to be gear-driven from the engine. It is designed to run at a speed of about 550 revolutions per minute and to deliver air at a pressure of 200 pounds to the square inch. For attachment by amateurs there is supplied a sliding gear mounted on the front shaft and a split gear to fit any exposed shaft on the machine. Another type of pump is called the quick detachable air pump and is a two-cylinder oscillating type. To make an attachment it is only necessary to have an exposed shaft upon which to mount a cup-shaped split gear. The pump can be carried in the tool box and clamped about the split gear for operation. An improvement in the four-cylinder pump this year is in

the use of a double check valve instead of single.

**Tryon Tire Pump**—The Tryon pump is designed to be attached to frame of the car in such a way that it may be friction driven from the flywheel. It is comparatively small and light as it weighs but 9 pounds and occupies a space of 8 by 6 by 4 inches. The pump is put into operation by means of an adjusting screw which

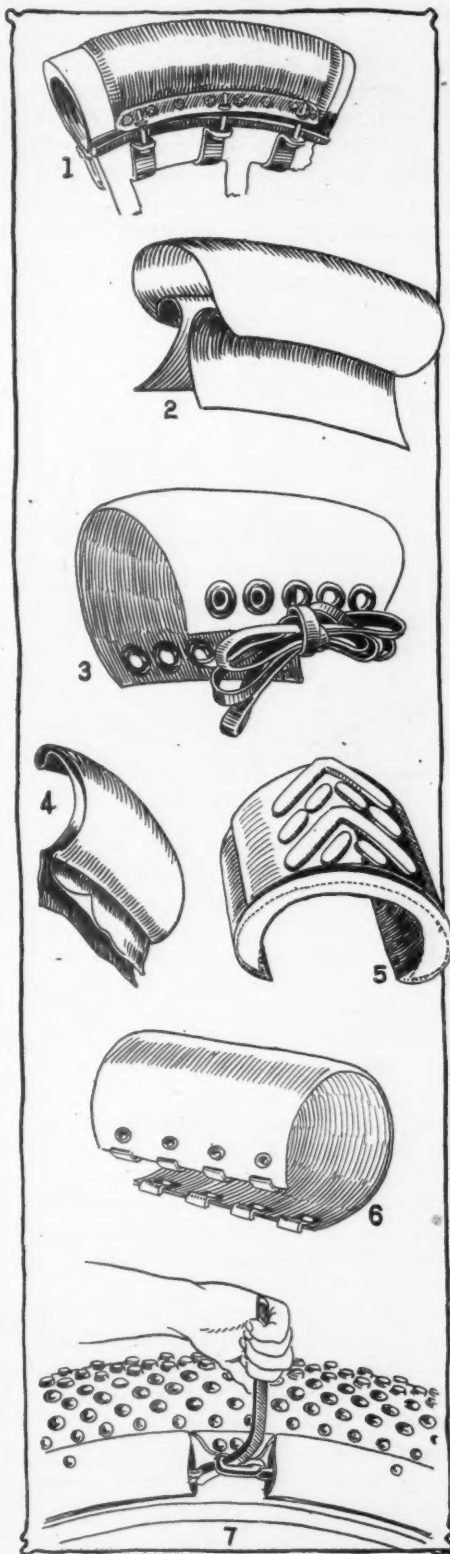
forces the friction wheel against the fly-wheel of the motor. A special gauge and exhaust valve is provided, which not only indicates the pressure but automatically shuts off the air to the tire when the desired pressure is reached, the surplus air emitting a shrill warning whistle as it escapes. This prevents the chance of burst tires by over inflation.

**Skinner Pneu-Flator**—An impulse type of air compressor is manufactured by the Skinner & Skinner Co., and is designed to be screwed into the cylinder head to replace the spark plug. It is operated by the compression in the cylinder, but pumps pure air to the tires. A double-ended piston is employed, the compression acting on the lower end while the upper end compresses the air. On the downward stroke the suction developed in the cylinder pulls the piston downward and takes in air for an automatically operated one-way valve. There is also a line of single acting and compound hand-operated pumps, one of which is provided with a pressure indicator.

**Folberth Power Pump**—The Gray Specialty Co. is manufacturing a power tire pump designed to be attached to the cylinder and operated by the piston directly but not through cylinder compression. A special pet cock is supplied which takes the place of the ordinary pet cock in the cylinder and the pump is inserted in it. The compressing piston of the pump is operated by a push rod which rests on the engine piston head and is held there by means of a coil spring so that the reciprocating movement of the piston and the cylinder produces a corresponding movement in the pump piston; thus compressing the air which is supplied through hose to the tires. The pump can be attached in an instant by a quick-locking breach-block design of the priming cup attachment. It is said that four tires have been inflated to 100 pounds pressure in 5¼ minutes, this including attaching the pump, starting the engine and replacing the pump in the tool box.

**Imperial-Wixon Pump**—The Imperial Brass Mfg. Co. is making a two-cylinder double-action compound pump in which the two cylinders are concentric with each other. It is a hand operated pump of conventional appearance and is supplied either with or without pressure indicating device.

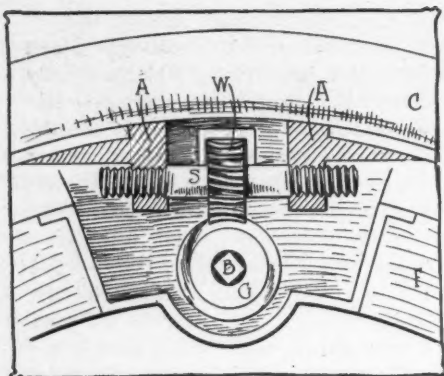
**Edelmann Tire Gauges**—In the line of motor car specialties manufactured by Edelmann & Co. there are five designs of tire gauges. One of these is a dial gauge to be carried in the vest pocket and slipped over the tire valve to determine the pressure; two of the others are designed for attachment to the tire pump, while the fourth, a new one, is arranged to be connected anywhere in the hose line, the connection being such that the ends



SOME TIRE SUPPLIES

1—Dyke's Bolted-On Tire Sleeve; 2—Selbach Safety Sleeve; 3—Gray Rubber Manchion; 4—Ideal Twin Sleeve; 5—Standard Tire Protector; 6—Essex Hook-On Patch; 7—Woodworth Tread with Quick Adjusting Tool





HOWARD DEMOUNTABLE RIM  
Worm G meshes with worm gear W on shaft S  
and moves ring ends AA

may be slipped into the ends of the hose at any point. The Economy tire gauge has a new feature in that the registering plunger is arranged to stay up at the maximum pressure indication so that it can be removed and read. Formerly the register returned to zero when the pressure was removed. The figures are etched on the register instead of being stamped.

**Honest Tire Gauge**—The National Motor Supply Co. makes a pencil-shaped pressure indicator which has the stay-up feature. In operation it is pressed against the valve and the indicating plunger shows the pressure. After reading, the plunger is pressed back to zero position.

**Invincible Tire Pressure Tester**—The United States Gauge Co. is manufacturing a dial type of tester which is to be pressed on the valve stem. The indicating hand has the retaining feature so that it can be read after removal from the tire. A small button enables the hand to be reset.

**Brown Gauges**—Two designs of pressure indicators are manufactured by the Brown Co., one of which is designed for permanent connection to the valve end of the hose, so that attaching the gauge to the valve attaches the pump hose at the same time and also opens the tire valve. The other design is a tester which is merely held on the tire valve. It has two hands, an indicating hand and a maximum hand; the latter shows the highest pressure recorded and retains its position until reset. One of the gauges made by this company is a compressometer for testing compression of the cylinder. It is inserted in place of the spark plug and is provided with a maximum hand for showing the highest pressure.

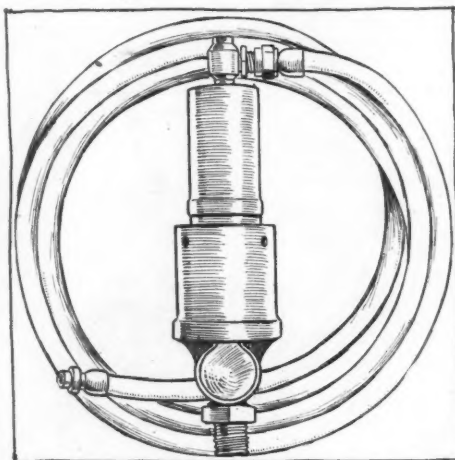
**Allen Tyrometer**—The tire pressure gauge manufactured by the Allen Auto Specialty Co. is a pencil-shaped tester in which the pressure is indicated by the movement of a sleeve on the barrel. The figures representing the pressure are etched upon the barrel and the indicator has the retaining feature by which the indication is retained after removal from the tire.

**Windjammer**—One of the productions of the Bridgeport Brass Co. is a new

hand tire pump which is called the Windjammer. This is of double-barrel design in which the pressure is compounded. The air hose connection is taken from the top of the pump instead of the bottom, as is the usual practice. Two other styles of pump are marketed by this company, the Aeolus and the Stapley.

**Noera Pumps**—The Noera Mfg. Co. is producing a line of foot pumps. The feature article of the series is the compound air pump which is designed to be particularly efficient. The downstroke gives the first compression and the upstroke compresses the air still more and forces it into the tire. Small clearances admit the maximum amount of air with the minimum number of strokes.

**Standard Tire Protector**—Removable treads which fit over any pneumatic tire and are made of much the same material



MAYO SPARK PLUG TIRE PUMP

as goes into the best pneumatic tire treads are marketed by the Standard Tire Protector Co. These are made in both the plain and non-skid treads, the latter consisting of a series of small triangles or arrowheads which grip the road surface. The protectors are held in place by the inflation pressure of the tire and do not require bolts or other mechanical fastenings.

**John L. G. Dykes**—In the line of tire goods made by the John L. G. Dykes Co. the Everstick reliner is the chief product. This is a complete inside reinforcement for the tire made of three-ply fabric vulcanized together on the bias with rubber to make it puncture-proof. There is an inner shoe, also, for emergency use which is called the Nevercreep shoe. Outer boots of the lace and clincher types are made by this firm, as are also a line of bolted-on shoes which are a recent product.

**Howard Demountable Rim**—The construction of the demountable rims of the Howard Demountable Rim Co. shows no change from that employed last year. This rim is of the expanding ring type and its action depends upon the spreading of segments of a ring placed between the rim and the felloe. The rim itself is not split, but in demounting the ends of the ring

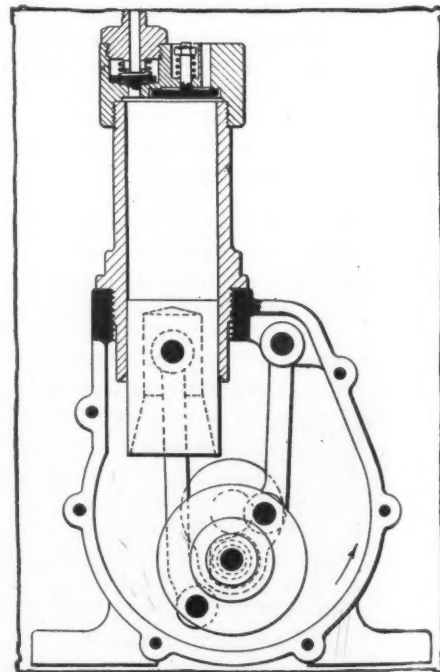
are brought together so that it has a smaller circumference and allows the rim to be slipped off. It can be used for any type of clincher or straight-side rim and the ring is brought together or expanded by means of a worm and gear. It is necessary only to turn one bolt to allow the rim to be loosened. A lug on the inside of one portion of the ring is brought to and catches in a slot in the other portion, thus locking it in place.

**C. O. T. Tire Supplies**—Charles O. Tingley & Co. has brought out a new blowout patch made of six-ply duck which is the feature of its line of tire supplies. In this patch the flap is cut on the bias so that the rim will not cut it. Aside from tire repair outfits, of which one is a tire solder for repairing cuts in casings, there is featured a rim paint and a dressing for tops.

**Martel Blowout Protectors**—A blowout plate is a new construction which clamps under the tire next to the rim and serves to hold an intended blowout. This is the product of the Martel Blowout Protector Co. Another device of this firm is a blowout protector which is claimed to eliminate the necessity of vulcanizing and also the use of an inner patch.

**Universal Windshields**—The Universal Windshield Co. is showing a line of rain-vision, zigzag, folding, torpedo and ventilated windshields. The feature of the ventilated construction is the bottom ventilating type of which the bottom panel may be off-set from the dash to provide fore-door ventilation. The rain-vision shields are provided with a side arm, pivoted at the center of the upper panel.

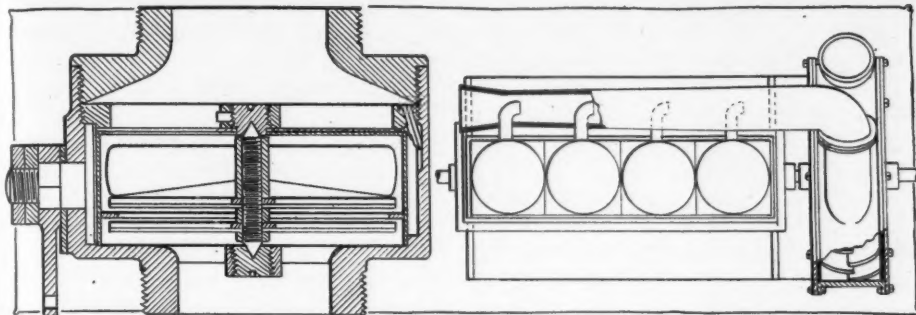
**Q. D. Tire Iron**—A tire tool for quick removal of clincher tires is marketed by Stevens & Co. and is called the Quick Detachable tire iron. It consists of two jaws on a toggle joint arrangement, by which the ends are forced between tire and rim



H. M. S. TOGGLE-JOINT PUMP



# Current Motor Car Patents



HATCHCOCK FUEL MIXER

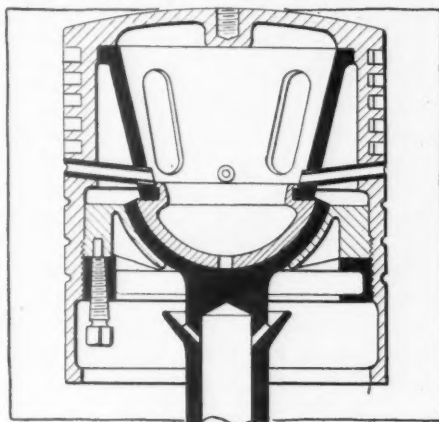
RECIPROCATING ROTARY ENGINE

**HATCHCOCK Gaseous Fuel Mixer**—No. 1,014,391, dated January 9; to Alius G. Hatchcock, San Francisco, Cal.—This pattern covers a mixer for carbureters having in combination a vertical shaft, blades extending from this shaft and arranged to produce rotation on the shaft by the passing of the gases there between, wheels on the shaft above the blades, these wheels having oppositely directing spokes, screens secured to the wheels, a casing around the mixing blades and screens and an annular baffle extending inwardly from the casing between the screens.

**Combined Reciprocating Rotary Engine**—No. 1,014,401, dated January 9; to Christopher Lake, Bridgeport, Conn.—This patent relates to a combined reciprocating rotary explosive engine, comprising a power cylinder, a power piston operating therein, a crankshaft operatedly connected to the power piston, a rotary motor wheel carried by the crankshaft, a casing for this wheel, a conduit for conveying the exhaust gases from the power cylinder to and directing them upon the rotary motor wheel, this conduit being of gradually increasing diameter towards its discharge end and having a flaring air intake end and means for directing the gases for escaping into this conduit towards the discharge end.

**Bell Motor Car Chassis**—No. 1,014,562, dated January 9; to William H. Bell, New York—This patent covers a motor car chassis comprising a plurality of swing bars, each pivotally mounted on one of the carrying wheel axles, the axles being fully extended across the chassis of the car. The bars being extended beyond

the opposite carrying axle of the car and bent or arched to avoid the axle, and a plurality of side bars adapted to be rig-



THE DOCK PISTON

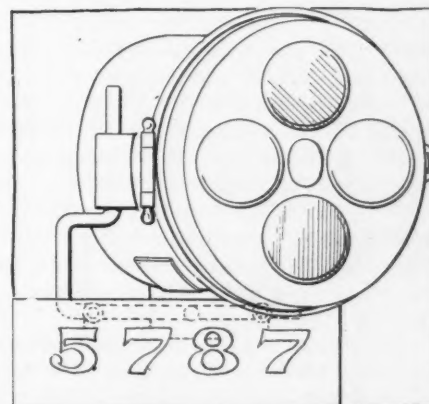
idly secured to the body of the motor car, these side bars having depended end extensions pivotally connected with the swing bars at a point approximately in line with the two axles when the body of the motor car is loaded.

**Dock Piston**—No. 1,014,052, dated January 9; to Herman Dock, Westerly, R. I.—The Dock patent covers a piston of hollow cylindrical cross section closed at its upper end, an inverted dome-shape bearing extending from a point above the center of the piston down to a point approximately midway in the length of it, the bearing end of the dome being of semi-spherical shape, a piston having a cup-shaped head, the concaved bearing surface thereof corresponding in shape and size to the semi-spherical bearing end

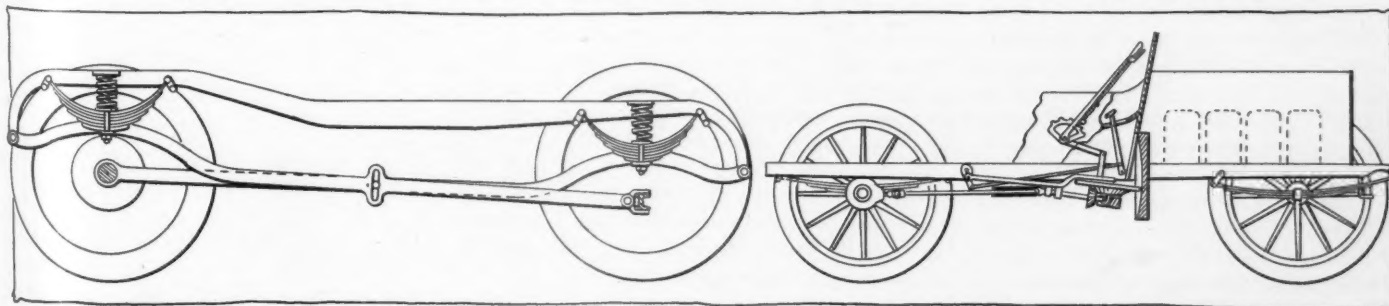
of the inverted dome, end means to hold the connecting-rod bearing in operative engagement against the bearing end of the dome.

**Vorhies Power Transmission Device**—No. 1,014,102, dated January 9; to Leroy Vorhies, Yoder, Colo.—This patent relates to a friction transmission mechanism, having in combination a revoluble friction wheel with a concave face, an oscillatory frame, a friction wheel carried, thereby to engage the concave face, a rear driving axle, a shaft having connections therewith, a telescopic connection between the shaft and the oscillatory frame, and means for adjusting the oscillatory frame, this means including means for holding the frame in adjustment when the desired vehicle speed has been obtained.

**Neil Lamp**—No. 1,013,947, dated January 9; to George E. Neil, Cleveland, O.—This idea relates to a combined tail lamp, license number illuminator and signaling device; it is adapted for attachment to the rear end of a motor vehicle and controllable from the driver's seat for the purpose of warning drivers of following cars of any intention to stop, slow down or turn to right or left. It consists of a lamp body of cylindrical form, having a window in its cylindrical wall, a front door for this lamp body having a cluster of lenses therein, and a light support within the body subdivided into compartments corresponding in number and position to the lenses, one of these compartments being open to the window.



THE NEIL LAMP



THE BELL MOTOR CAR CHASSIS DESIGN

VORHIES FRICTION POWER TRANSMISSION

# Big Detroit Show More Than Made Good

**Affair Proves a Business-Getter and Many Sales Are Reported—Attendance More Than 15,000 Ahead of Last Year—What the Exhibitors Say**

**D**ETROIT, Mich., Jan. 29—Expectations were more than fulfilled by the Detroit dealers' show, which closed Saturday night with a great tooting of horns and other evidences of rejoicing. Half an hour later many of the show cars were being hustled out and into special trains, bound for Chicago, and a number will make the rounds of the western shows.

The Detroit exhibition was an unqualified success from every standpoint, making allowances for the cramped space, which forced a curtailment of some of the exhibits. The attendance was 15,000 ahead of last year, just about double, in fact. Actual results in the way of sales are a little harder to figure, but a conservative estimate is that in actual business transacted this show was from 15 to 20 per cent ahead of last year's. There were more retail sales than ever before, more wholesale sales, more agencies placed and more good, live prospects booked than in any previous year. The Chalmers Motor Co., for instance, showing its full line, took the names of more than 300 persons, including a large number from New York, the west and from Canada, who announced themselves as being in the market for cars. Out of these 300 names the company figures on getting twenty-five or possibly thirty sales. There were six actual sales of Chalmers cars at the show, including two of the new six-cylinder, 48-horsepower seven-passenger touring car. The popular model, however, was the five-passenger 36. The Buick Motor Car Co. had a number of salesmen on hand and they sold upwards of fifteen cars.

## Big Cars Move Slowly

The sales of high-priced pleasure cars like the Lozier, the Packard, the Oldsmobile and the Stevens-Duryea at the show were few and far between and probably could be counted on the fingers. The experience of the local dealers has been that when a man has from \$4,000 to \$6,000 to lay out for a car he is going to take his time in making his choice. The annual show offers the best possible opportunity for comparison and the man doesn't usually make up his mind until he has looked them all over and has studied the catalogs also, and that is usually some time after the close of the show. It is true that the show has enabled the dealers to close up prospects that they have

long been working on. J. P. Schneider, local agent for the Stevens-Duryea, is practically sure of four sales as a result of the show and has received deposits on one or two cars; the others are about convinced.

The Winton made three retail sales. Joseph Schulte, manager of the Detroit branch of the Cadillac Motor Car Co., reports eleven individual sales as against nine last year. Two cars that attracted more than usual attention were the Cadillac coupé and the new gun-metal torpedo.

The Neuman-Lane Co., handling the Stoddard-Dayton, the Pierce-Arrow and the Rauch & Lang electric, closed three deals and secured a fine list of prospects. The Warren Motor Car Co. claims to have sold close to a dozen cars, the standard 30's being the most popular with the Warren customers.

## Prospects Are Bright

"From a local standpoint this has been the biggest show in our history," said H. E. Yale, of the Cunningham Auto Co., agent for the E-M-F 30 and the Flanders 20. "More people have declared themselves in the market for cars than at any previous show in my recollection, and we have secured no fewer than forty live prospects in addition to closing several deals."

"This show has convinced me beyond all doubt that the six-cylinder car has come to stay," said George Grant, of the Grant Brothers Auto Co., whose exhibit of Everitt sixes always was thronged. "We have had a nice wholesale business all week and have made two or three retail sales."

J. H. Brady, handling the Hudson, took orders for fully a half-dozen cars and is well pleased with the results of the show and the prospects of future business.

"We had a nice state business and made probably six local sales," said Robert K. Davis, of the United Motor Detroit Co., whose display of Columbia and Maxwell cars and the Sampson truck was featured by a working model of the Knight engine.

The big demand seemed to be for the cars selling under \$2,000, and surprise was expressed at some of the values offered for less than \$1,000. In fact, the classiness of the low-priced cars was a feature of the show that came in for more than usual comment. There was the new Detroit, for example. Zach C. Barber, of the Barber Motor Sales Co., which has the agency for the state of Michigan, reports that his concern has closed contracts for its entire allotment for 1912, and the company's entire output of 1,500 cars has been sold in advance, although deliveries will not begin until March 1. The little

Belmobile, just brought out by the newly organized Bell Motor Co., of Detroit, also attracted more than passing attention in spite of the fact that it was necessary to display it outside the pavilion for lack of space within. This company has leased the old Grabowsky power wagon plant and is prepared to turn out 500 cars this year, practically all of which have been contracted for.

The Ford Motor Co.'s salesmen were kept busy all week answering queries and giving impromptu lectures on the Ford engine, a working model of which was shown in operation. The company also did a good business at the show, selling three touring cars, two torpedos, one or two roadsters and one delivery car. In addition the salesmen secured fifty or sixty live prospects.

The model T proved the most popular of the Regal line and George Franklin, of the Regal Motor Sales Co., reports having sold twelve of these during the week, in addition to five coupes, two L-F five-passenger touring cars and one 35 under-slung. The Cartercar Co. reports an even dozen sales of its model R, and the Lion Motor Sales Co. sold ten Lion cars.

In spite of the unfavorable location the Hupp Corporation's new R. C. H. gasoline cars and the Hupp-Yeats electric received much attention. George Hupp is authority for the statement that the company has closed contracts, as a result of the show, for 200 gasoline cars and ten electric in Michigan territory. The Hupmobile reports a good state business. M. A. Young, handling the Elmore, Reo and Waverley, made six individual sales. The visitors displayed a good deal of interest in the Reo the Fifth.

## Overland Does Well

The Willys-Overland Co. had a factory representative on the ground and closed some good business with the Michigan dealers. He claims to have received 161 orders for immediate shipment. The Jackson Automobile Co. exhibited actual orders and cash deposits accompanying them as evidence that they had been doing business. The company made eleven retail sales during the week and placed a number of agencies in Michigan and other states. The Michigan Buggy Co., of Kalamazoo, closed agency contracts covering Florida, Tennessee, a part of Texas, Washington, Colorado, Oregon, several counties in lower Michigan and four Canadian agencies. John Cox has taken the Detroit agency and has just established salesrooms at 744 Woodward avenue.

More interest was shown in commercial cars than at any previous show here. Many of the cars exhibited were sold before the show and bore the name of the firm purchasing them. Both of the Packard 3-ton trucks exhibited by the Stand-



# Wolverines Bring Out Some New Cars

ard Auto Co. were sold in advance. The General Motors Truck Co. exhibited half a dozen or more trucks, nearly all of which were sold. The Anderson Electric Car Co. received an order for three delivery cars from a local clothing house during the show. The Federal truck was shown by the Thompson Auto Co. and elicited wide inquiry and one sale.

A good line of electric pleasure cars was displayed, one of the striking exhibits being the new Flanders coupe, made by the Flanders Mfg. Co., of Pontiac. The Church-Field company's innovation, an electric with a two-speed planetary transmission, proved a source of interest. It was the first regular showing of the Colonial Electric Car Co.'s product and the company reports the sale of one car. The Miller Car Co., a comparatively new concern with a plant at 1636 Russell street, displayed a moderate-priced touring car. The car was designed by Theodore Miller, president of the company, and it is prepared to manufacture 500 cars this year. This was one of the few cars on exhibition at the Detroit show that were not shown in New York.

The Colonial electric, made by the Colonial Electric Car Co., has been put on the market recently and is made in but one model at the present time, this being a four-passenger coupe of conventional design. In this vehicle the motor is located amidships, a little to the right of the center and supported from two channel steel cross members of the main frame. Power is transmitted from this motor to the propeller shaft by an inclosed silent chain. The shaft is inclosed in a torsion tube having a spherical joint at the front end. This joint incloses the single universal joint of the propeller shaft.

## Features of Colonial

The propeller shaft communicates with the bevel gear driving and differential mechanism of the floating rear axle, which has a pressed steel housing and whose mechanisms are mounted on imported annular ball bearings. The front axle is an I-beam drop forging with the front wheel bearings also of imported annular design. The main frame is of pressed channel steel construction mounted on semi-elliptic front, and scroll elliptic rear springs. Wheels are equipped with 32 by 4-inch tires and the wheelbase is 93 inches.

Control of the car is by means of a Westinghouse controller giving six forward speeds and three reverse, a side-lever steering gear, and two brake pedals. A feature of the steering gear in this car is that the steering column is contained in a stationary mast fitted with F. & S. ball bearings; and the cross connecting link of the steering mechanism is arranged behind the axle.

In order that the car may not be started

with the brakes set, the emergency brake, which is the only one provided with a latch, is provided with a means for automatically cutting out the current and rendering the motor inoperative.

An excellent feature of this car is the attachment of slides to the pedals under the foot board, which close the slots and prevent a draft through them in cold weather.

A special cutout switch is provided in front of the rear seats, which is provided with a Yale lock and key. This is designed to prevent unauthorized use of the car.

In the way of special body features the interior of the body is very roomy and most comfortably upholstered, the front window has incorporated in it a rain-vision windshield, which is split about two-thirds of the way down so that the sight is not impaired when open. A unique hand rail is provided which runs the entire width of the door; door hinges are provided with integral stops that eliminate the necessity of the usual straps; and the usual internal fittings are provided.

## Miller Car

The Miller car which was brought out this year by the Miller Motor Car Co., of Detroit, has a long-stroke motor with four cylinders cast en bloc; a leather-faced cone clutch; a selective sliding gearset located amidships and mounted on a sub-frame with the motor; a propeller shaft contained in a torsion tube and having a single universal joint at its forward end; a semi-floating rear axle equipped with New Departure ball bearings; an I-beam front axle; a pressed channel steel frame; semi-elliptic front springs; scroll elliptic rear springs; wheels equipped with 34 by 3½ and 34 by 4-inch tires; and a wheelbase of 116 inches in the touring car and 110 inches in the roadster.

The cylinders of the motor are of the L type with integral waterjackets and valve chambers and intake gas manifold; its valves are all on one side, inclosed, and provided with adjustable pushrods; and the carburetor is mounted on the right side of the motor opposite from the valves which are on the left, which renders the valve mechanisms very accessible.

The crankcase is divided horizontally, the upper portion forming the base of the motor and it is mounted by four legs on a subframe. The lower half may be easily removed without disturbing the three plain crankshaft bearings, and this lower portion is subdivided to form a reservoir at the bottom for a circulating splash lubrication system. In this oiling system a gear pump, externally located at the left rear corner of the case and driven by shaft and gearing from the camshaft, draws lubricant from the reservoir and conducts it into the splash com-

## Colonial, Church-Field and Century Electrics, Miller and Detroit Gasoline Makes and American Steam Truck Displayed at Exhibition in Detroit

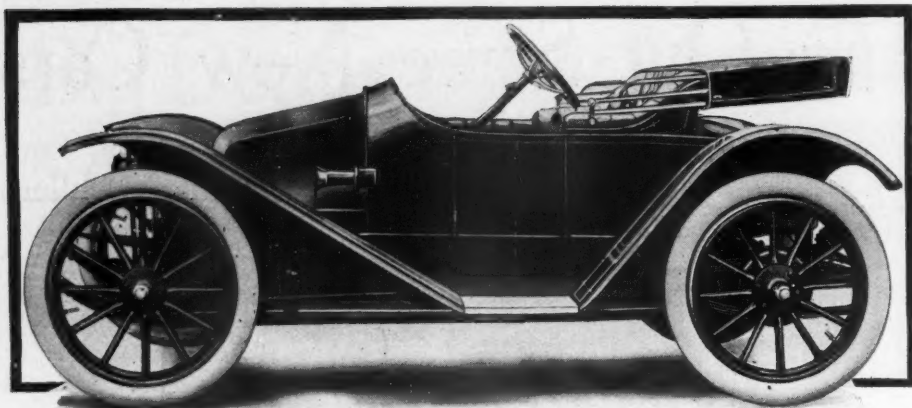
partments in the upper part of the lower half of the case, where the proper level of oil is maintained. The overflow from these compartments returns to the reservoir below. A thermo-syphon cooling system is employed, comprising a vertical-tube radiator, a belt-driven fan, and large direct pipe connections, conveniently arranged. Ignition is by means of a single jump spark system with a high-tension Mea magneto as standard equipment, and with the option of a Bosch high-tension magneto if desired. Grease cups are generally distributed throughout the outboard bearings of the car.

Control is by means of a steering wheel on the right hand side of the car, with spark and throttle levers over the steering wheel, a single pedal which operates both the clutch and the external contracting service brakes of the rear wheel drums; a rocking gear-shifting lever, and an emergency brake lever to the right of the driver's seat.

## The Detroit

The Detroit is a new five-passenger car brought out this year by the Briggs-Detroit Co., Detroit. Its distinguishing features include left-hand drive, center control and three-point suspension; in connection with a unit power plant comprising a four-cylinder motor, multiple-disk clutch and selective sliding gearset; a propeller shaft with two inclosed universal joints; a floating type rear axle; I-beam front axle; pressed steel frame; semi-elliptic front and three-quarter platform rear springs; 32 by 3½-inch-tired wheels; and a wheelbase of 104 inches. Annular ball bearings are used throughout the car.

The motor has a bore and stroke of 3¾ inches and 4¾ inches, respectively; its valves are all on one side, inclosed, and provided with adjustable pushrods; and its external features are so arranged that simplicity and accessibility prevail; the inlet manifold being, for the most part, cast integrally with the cylinder permits of placing the carburetor opposite to the valve mechanisms. The motor has a cast aluminum barrel-type crankcase with an integral fly-wheel housing to which the clutch and gearset housing is bolted. It is suspended from a flexible trunnion in front and at two points opposite the fly-



NEW CHURCH-FIELD ELECTRIC ROADSTER

wheel housing. There is a large removable plate at the bottom of the case which gives easy access to the connecting rods and internal mechanisms, and the lower rear portion of this plate contains an oil reservoir.

Lubrication is by means of a circulating splash system in which a plunger pump conveniently and externally located on the right side of the crankcase and operated by a cam on the camshaft, draws oil from the reservoir, forces it up through a sight on the dash, from which it is returned to the left front end of the case. The fly-wheel housing also forms a part of the oil reservoir and oil scooped off the fly-wheel is conducted to the rear portion of the crankcase, thus an adequate supply of oil is provided whether the car be going up or down hill. The motor crankshaft is mounted on two extra large F. & S. ball bearings; while the camshaft is mounted on three die-cast bearings.

The cooling system operates on the thermo-syphon principle, and comprises a vertical-tube radiator and short, direct water connections of large diameter. No fan is used.

#### Some Detroit Features

A single pump-spark ignition system is employed, in which a Bosch high-tension magneto, with fixed control is employed. The engine gears, two in number, are at the rear end of the motor crankcase and cut helically; the camshaft gear being of cast iron, the crankshaft pinion of steel, and both have a 1-inch face. The clutch comprises twenty-five steel disks which run in oil and very convenient adjustment is provided. In the gearset, which is of small, compact design, both shafts are in the same vertical plane and mounted on New Departure ball bearings.

The rear axle has a pressed steel housing which is strongly webbed and requires no truss rod. Driving and differential gears are mounted on a carrier which is removable as a unit from the front, while the large bevel gear and differential unit is separately removable from the rear. New Departure ball bearings are used throughout; the wheel bearings being arranged directly opposite the ends of the spokes. Driving flanges are welded to the

ends of the axle shafts and bolted to the hub flanges.

The car is controlled by a worm-and-gear steering mechanism with a throttle lever over the wheel, two pedals operating the clutch and service brakes; a central gearshifting lever; and an emergency brake lever at the left side of the car.

#### Church-Field Electric

The Church-Field electric, which is made by the Church-Field Motor Co., Sibley, Mich., claims to be the only electric car ever built with a two-speed transmission gearset. This, however is not its only distinguishing feature. It has an underslung frame of pressed steel mounted on semi-elliptic front, and inverted elliptic rear springs; its control mechanism gives ten speeds forward or reverse; it has wheels equipped with 36 by 4-inch pneumatic or 34 by 4-inch cushion tires, both of which fit the same Q. D. rims; and its wheelbase is 100 inches.

The motor is an exceptionally large one, located amidships, and suspended from a subframe by three-point suspension. A two-speed planetary transmission gearset is housed in unit with the motor which gives a gear reduction of 4 to 1 on high-speed or direct drive, and 8 to 1 on low speed. The advantages of this construction are: a great saving of battery current when subjecting the motor to heavy loads, and at the same time increasing the amount of power.

A propeller shaft inclosed in a torsion tube transmits power from the transmission gearset to a floating type of rear axle. This propeller shaft has but a single universal joint at its forward end, and practically a straight-line drive is obtained when the car is carrying its normal load. Bevel driving and differential gears are used in the rear axle, and New Departure annular ball bearings are employed throughout; those of the wheels being of the double row design and located directly opposite the ends of the wheel spokes.

The front axle is an I-beam drop forging with Elliott type steering knuckles; and New Departure annular ball bearings are fitted to the wheel spindles. The motor control mechanism is of Church-Field design, and is unique and simple in that it

has only three moving contacts. A motor control lever is conveniently arranged at the top of the steering column, like the engine control levers of a gasoline car. The steering mechanism is located at the left side of the car, and either a side lever or wheel is fitted, as desired. Two pedals complete the control mechanism: The right one operates the planetary transmission gearset; pushing it full forward engages the low-speed gearing; an intermediate position applies a transmission brake; and letting it come full back brings the high-speed clutch into engagement. The left foot pedal applies a pair of internal expanding brakes operating on the rear-wheel drums.

Batteries that operate the motor, comprise twenty-six cells of 180-ampere hours' capacity, twelve cells being arranged under the hood in front, and fourteen under the rear of the vehicle body. The motor control is so designed that the batteries are connected in series at all times. A special lighting battery is provided, which has a 6-volt 150-ampere hour capacity; this battery circuit is provided with a throw-over switch, by which it may be brought into use when the regular vehicle operating batteries are so run down as to light the lamps but dimly when the motor is in operation. The line comprises two body types, a four-passenger coupe and a two-passenger roadster. The coupe body is of aluminum, upholstered in imported whipcord, broadcloth or leather, and window frames are of walnut. A rain-vision windshield is incorporated in the front wind. The doors open forward, so as not to be torn off should they be insecurely latched and come open, while leaving or entering the garage, passing a pillar or the like.

#### The Century Electric

The Century electric manufactured by the Century Electric Motor Car Co., of Detroit, made its initial appearance at the Detroit show with two unique body designs, a coupe and a roadster. Its distinguishing features are an underslung frame which gives the body a low graceful appearance, a motor bolted integrally with the housing of a floating type bevel gear rear axle; semi-elliptic front, and three-quarter platform rear springs; wheels are equipped with 36 by 4-inch tires. The wheelbase is 92 inches.

The frame is of pressed channel steel. Imported annular ball bearings are used throughout the car. A tubular front axle is employed whose spindles are fitted with adjustable cup and cone bearings. Grease cups are provided on practically all out-board bearings.

Control of the car is by means of a side lever steering mechanism arranged on the left, which is direct and positive in its action; a small motor control lever operating a drum-type controller, is conveniently arranged at the left side of the seat and gives six forward speeds and three reverse. There are two brake pedals,



# Quaker Truck Display a Successful One

the right one operating the service brakes, and the left one the emergency brakes. Both sets of brakes are of the internal expanding type, arranged side by side and operating on the rear wheel drums. The emergency brake is provided with a locking device which automatically shuts off the current, making it impossible for one to start the car with the brakes set. The control lever is provided with a unique locking device; and the same key fits the doors of the car.

Thirty cells of thirteen-plate battery with ten cells under the rear deck and twenty under the hood in front, supply the current.

## The American Steam Truck

The American Steam Truck Co., of Lansing, Mich., exhibited at the Detroit show a 5-ton truck with power produced by a V-type twin quadruple steam engine. This power is transmitted to the rear wheels of the vehicle by a shaft to the jackshaft, and side chains to the rear wheels. The entire power plant is arranged within the cab behind the driver's seat; the water glass is conveniently located behind the driver; and all gauges are arranged in front of the dashboard.

The steering wheel is located on the left, making the truck left-hand drive. The throttle and the reversing levers are arranged on the steering post; and two long levers centrally located respectively operate the clutch and brake. Simplicity and economy of operation have been the study of the designers in the production of this assembly.

The engine is in the form of a V with the crankshaft at the lower apex. It might be described as an eight-cylinder steam engine with four cylinders on each side, each group of four cylinders acting in unison, steam being automatically supplied to all four cylinders in such a manner as to exert the same pressure on each of the four piston heads, at varying pressures and dimensions, forcing all pistons on that side down at once and reciprocating or forcing all four up in the same manner. The entire eight cylinders press or pull upon a single crankpin on the crankshaft, thus the entire eight cylinders work constantly and continuously on this single crankpin, producing it is claimed the greatest amount of power with the smallest amount of steam, so applied as to give the greatest possible efficiency and useful energy.

## SECOND BUFFALO SHOW OFF

Buffalo, N. Y., Jan. 30—The second Buffalo show which was scheduled for February 5-12, has been called off and money paid in by dealers has been returned. The Buffalo Automobile Trade Association opposed the holding of the show which was promoted by outside people, and it has won its fight.

## Results of Second Week at Philadelphia Meet Gratifying—Attendance for Entire Session Placed at 35,000, with 10,000 Viewing Power Wagons—Burglar-Proof Safe Van Shown

PHILADELPHIA, Pa., Jan. 28—When the doors of the First and Third regiment armories were closed at 11 o'clock last night, the most successful motor car exhibition ever held in Philadelphia, both in the amount of business transacted and in attendance, was brought to a conclusion. While no exact figures are obtainable, J. H. Beck, secretary of the Philadelphia Automobile Trade Association, under whose auspices the eleventh annual exposition was conducted, places the count at 35,000, divided 25,000 the first week and 10,000 the second, which figures show a gain over last year of 20 per cent.

Especially gratifying was the interest shown during the last week, when, owing to the nature of the exhibits, it was not anticipated that the general public would so readily respond, interest in the commercial vehicle usually being confined to business men.

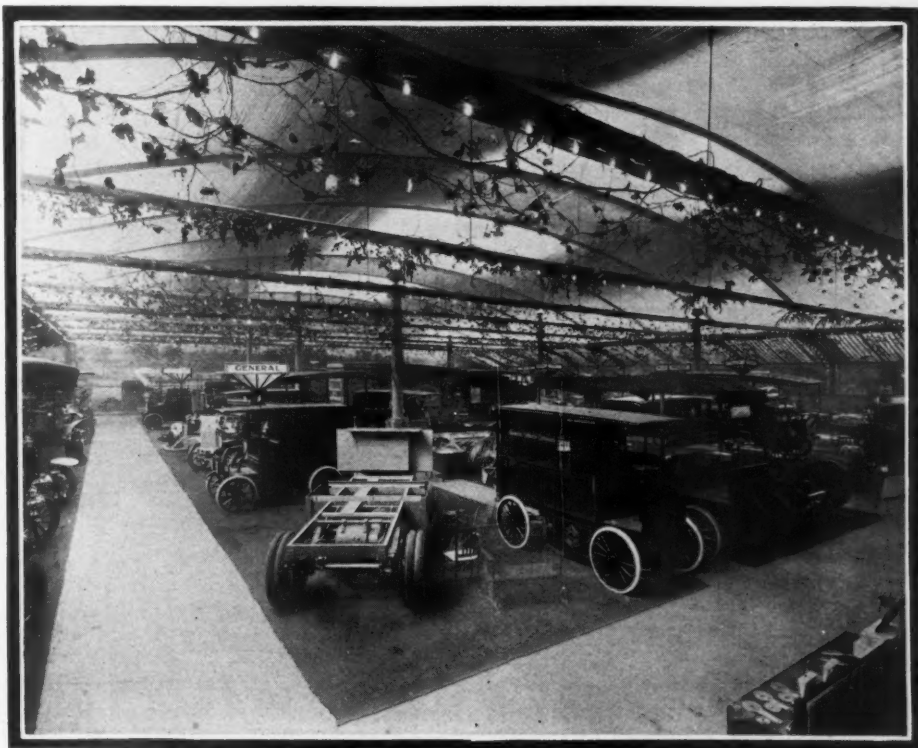
Business from the exhibitors' standpoint has more than confirmed expectations throughout the 2 weeks. A conservative estimate of \$1,500,000 has been placed as the value of the machines sold and allowing for only a small percentage of prospects. An undercurrent of doubt existing previous to the holding of the exhibition as to its success, some believing that interest in midwinter shows was on the wane, has been thoroughly dispelled,

and the stimulus to the industry received from the one just ended promises to make the year 1912 a record-breaker.

By dint of a great deal of hustling every vestige of the gasoline pleasure car exhibit was removed last Sunday and by the opening of the second half of the show on Monday morning the new electric signs for the commercial vehicles and the electric pleasure car exhibits had been placed and the interior of the two buildings transformed, although all the cars were not here for installation. But by Tuesday the exhibition settled down to a business-like basis.

The exhibition at the First regiment armory was divided between electric pleasure cars and motor trucks, while the Third regiment armory display was devoted to motor-propelled vehicles exclusively, along with a holdover accessories exhibit. The electric pleasure cars, although in the minority, demonstrated that in gaining adherents they have kept on the top of the heap, too, their many advantages for town and suburban use being fully appreciated. Quietness, simplicity of operation and cleanliness are arguments hard to beat and their appearance on the streets is noted with greater frequency than ever before.

The exhibit of commercial cars was the most comprehensive ever held here. As



VIEW OF COMMERCIAL CAR SHOW AT PHILADELPHIA

their accomplishments become more generally known the more is their business-building power driven home, and their daily performances are their best salesmen. During the past week opportunities were presented to forcibly demonstrate the superiority of the motor truck. On Friday a 6-inch snowfall and its attendant difficulties to horse-drawn equipment proved the value of motor transportation. A thaw had preceded the storm and when freezing weather accompanied the latter, the footing was extremely treacherous. On streets like Broad and Diamond, which have a smooth surface for miles, the sight of a fallen horse became so common as not to attract more than passing notice. Trolley cars held up by fallen animals, whose drivers sought the protection the rails offered, were a common occurrence. Meantime fleets of motor trucks wended their way east and west, north and south with no more effort, apparently, than under normal conditions. Perhaps there is some significance attached to the fact that Friday evening recorded the high-water mark for attendance.

#### Free Rides for Spectators

In order to facilitate the transportation of visitors between the armories the management of the show installed a free motor bus service on Wednesday. The bus, a Saurer, had a seating capacity of twenty-nine passengers and ran on a regular schedule. Capacity loads were carried on almost every trip. The truck was heated and successfully showed its adaptability for travel on streets where there are no trolley lines for transportation.

Quite the newest motor-driven car to make its appearance is the Autocar armored steel burglar-proof bank car, the property of the First Mortgage Guarantee and Trust Co., of Philadelphia. While the car has seen several weeks' service for this company, its use this week attracted more attention by reason of its being used to transport the receipts of the show from the armories to the bank. The car is constructed mainly of steel armor, containing a steel safe deposit vault and patented electric burglar alarms, in addition to which it is bullet-proof. In the service of the bank it is used to carry payrolls to factories and mills and to transport large sums of money and bullion.

The car is divided into two compartments, the front for the driver and a passenger, the banking room being in the rear. Electric lighting forms part of the equipment and communication between the two compartments is arranged by a series of signal devices. Another device is an arrangement whereby the banking van can be locked and left standing. Should outside interference be attempted electric alarms would immediately be set off, arousing the neighborhood.

Many of the local exhibits are booked for the Chicago show and were immediately shipped upon conclusion of the local exposition.

## Pittsburgh Making Its Annual Display

### Sixth Annual Show in Duquesne Garden Promises to Eclipse All of Its Predecessors—Extra Efforts Are Being Made to Interest Out of Town People—Success of Show Is Apparent

PITTSBURGH, Pa., Jan. 29—The sixth annual show of the Automobile Dealers' Association of Pittsburgh opened in Duquesne garden Saturday evening with a brilliant display.

The opening night brought forth a record-breaking crowd. Compared with the number which attended the first night of the first show of the association in 1907, the spectacle was one that brings out very forcibly the tremendous growth of motor enthusiasm in the Pittsburgh district.

The display of accessories was arranged in the balcony on both sides of the pit except in front. The larger space which had been provided by taking away the seats was fully taken up. The variety of exhibits was greater than last year and manufacturers from nearly every section of the country were represented. The electrical display provided for these accessory exhibits was fine. Nearly every booth had some novel electrical feature of this kind so that the interest of the visitors was equally divided between the pit floor with its beautiful cars and the balcony aisles with their novel and useful exhibits.

Special effort has been made this year to get in the country dealers and particularly the country buyers from western Pennsylvania, eastern Ohio and West Virginia. Thousands of special invitations were sent out with this in view. This week there will be no let-up on the part of the committee to make the attendance from the suburbs and country towns larger than ever before, for the country trade is now becoming one of the big assets in the business of Pittsburgh dealers and manufacturers. The committee has very wisely inserted in its 1912 program a list of more than twenty popular motor routes through western Pennsylvania, giving stations, hotels, toll gates, distances and time ordinarily consumed on the roads. The program also gives a splendid summary of the motor vehicle law in Pennsylvania and the laws regarding licenses and registration fees.

The motor truck exhibit which will be put on next week will be, according to present indications, by far the largest and most important display of commercial vehicles ever seen in Pennsylvania. Bookings are already far ahead of last year's truck show.

#### RHODE ISLANDERS SUPPORT SHOW

Providence, R. I., Jan. 27—The first annual show was held in the State armory this week under the auspices of the Rhode Island Licensed Automobile Dealers' Association. Fifty-one different makes of pleasure vehicles, fourteen kinds of com-

mercial trucks and nearly a score of accessory of displays afforded the opportunity to every visitor to see the latest things in motordom. On the main floor there were eighty-two exhibit spaces containing over 150 cars. It was the first time that a display of commercial vehicles has been held in this state and this department received its full share of attention. The suburban and rural farmer as well as the city business man carefully scrutinized the merits of the trucks and the various types of delivery wagons. There were also exhibits of motor cycles.

The day after the opening of the show the exhibitors began to reap the harvest, several sales being reported. Each succeeding day gave rise to encouraging reports and during the closing hours today many sales had been recorded and scores of prospective purchasers booked.

#### SHOW AT EVANSVILLE, IND.

Evansville, Ind., Jan. 29—The first motor car show ever held in Evansville was given under the auspices of the Evansville Automobile Club during the week of January 22-27 and was so successful it will be made an annual event. There were displays of forty makes of cars, the exhibits being by the fifteen dealers of Evansville and by district and state agents. There was a large delegation at the show from Indianapolis factories and distributing agencies. A banquet was given at the St. George hotel on Tuesday evening.

#### LIMA PICKS DATES

Lima, O., Jan. 29—The Lima Automobile Dealers and Garage Proprietors' Association held a meeting recently and decided upon February 5 to 8, inclusive, as the dates for the Lima show, which will be held in the Auditorium.

#### BRISCOE FILES RACING PROTEST

New York, Jan. 26—Benjamin Briscoe, president of the United States Motor Co., has prepared a letter to the American Automobile Association advising that it abandon the control of speed contests and devote its time to the promotion and encouragement of touring and reliability contests and particularly furthering its work for good roads. "I advise that our national body abandon the government of speed contests, turning it over to any organization that will care for it, leaving the A. A. A. to continue its good work in connection with roads, legislation, foreign and American touring maps, guide books and touring contests," says Mr. Briscoe.



# Globe-Girdlers Finish Their Grind

## Hupmobile Tourists Make Last Leg of Journey Around the World and Are Given a Hearty Reception Upon Checking in at Detroit—Trip of Americans a Most Adventuresome One

DETROIT, Mich., Jan. 27—The Hupmobile world tourists, who left Detroit November 4, 1910, to circle the globe in a little Hupmobile, arrived home safely Wednesday, having completed an extraordinary zig-zag journey of more than 40,000 miles, of which 27,000 miles were made under the car's own power.

Joseph R. Drake, secretary of the Hupp Motor Car Co., of Detroit, Tom Hanlon, mechanic, and Tom Jones, the official chronicler of the tour, were met at Windsor by officials of the Hupp organization, William B. Thompson, mayor of Detroit, Milton A. McRae, president of the Detroit board of commerce, a large number of Hupmobileists and a band. The trio and the car remained for the rest of the week attending the show. They then left for Chicago.

The Hupmobileists left New York, after an enthusiastic welcome on their arrival from Liverpool and visits to the New York show, where they attracted a great deal of attention, Monday January 15, and drove to Detroit.

The itinerary of the world's tour was planned by Joseph R. Drake, who had to figure out every detail of the route, water accommodations, clothes, food and what not, covering every conceivable country and climate. The countries visited included Australia, New Zealand, the Philippines, Japan, China, India, Egypt, the Mediterranean district, continental European countries and England.

The men brought back with them memories of thrilling moments that will remain with them all their lives. Not the least of these concerns the night they were lost in a Philippine jungle. They can look back with wonder at the time they hobbled with a Japanese prince, rubbed elbows with a sheik, or took a spin with a Singapore potentate. The hero of a boy's adventure story could hardly do more.

At Hawaii the little Hupmobile was the first car of its size to climb the crater of Kilauea. In New Zealand it negotiated successfully the hills of the North and South islands, the "Alps of the Southern Seas." They visited the wild and remote settlements of the Maoris, the native tribe, and were entertained by these strange aborigines and were permitted to see their native dancers.

But it was when they were touring in the Philippines that they passed through one of the most thrilling adventures—one that might easily have cost them their lives. They were on their way from Manila to Baguio, the summer capital of the islands. In some way they got off the

road and suddenly discovered they were lost in the jungle. Night was coming on, they had little food and no protection against the cold, the poisonous insects and reptiles or the attacks of wild beasts. They decided, however, to keep on, and forded mountain torrents, cut logs to jack the car through mudholes and labored through thickets. At midnight, nearly spent with fatigue, they suddenly emerged on the main road, and were saved.

There followed delightful weeks in China and experiences in Hong Kong, Canton and Shanghai. In the latter city they were mobbed because they tried to penetrate the walled city, and were rescued by the police. Some of their most glorious tours and most agreeable experiences were in Japan. They visited Nikko, famed for its sacred bridges and temples, Kamakura, with its great Buddha, Tokyo and Yokohama. At Kamakura the little Hupmobile, travel-stained but intact and ready for fresh adventures, was photographed in the shadow of the great Buddha.

The sultan of Sulu was one of their hosts at Singapore and soon disclosed the fact that he was a real person and not the imaginary cocktail-experimenter about whom George Ade wrote. They gave this royal person the time of his life when they took him for a spin in the streets of Singapore. Java, Sumatra, India, Ceylon and Egypt were visited.

### LEXINGTON IN BIG RACE

Indianapolis, Ind., Jan. 29—Notwithstanding the prophecies of many who claim to know, that motor car racing is on the wane and that manufacturers are becoming more and more inclined to dodge contests, at least one company will make its debut in motor car racing at the 500-mile international sweepstakes race on the Indianapolis motor speedway next Memorial Day. The Lexington Motor Car Co., of Connersville, Ind., has entered a six-cylinder 1911 model Lexington in the 500-mile race to be run May 30. This is the first contest of the kind in which this company has participated. Harry Knight is nominated to drive the Lexington car in the long race. The other entries to the race consist of two Stutz cars entered by the Ideal Motor Car Co., of Indianapolis, to be driven by Gil Anderson and Len Zengel, with Billy Knipper as relief driver; two Mercedes cars to be driven by Spencer Wishart, of Port Chester, N. Y., and Ralph dePalma, both of these cars are privately owned; two six-cylinder Case cars with Louis Disbrow and Joseph Jagersberger nominated as pilots; two National cars with a team of four drivers named, con-

sisting of Wileox, Herriek, Merz and Herr and a Fiat entered by E. E. Hewlett, of Los Angeles, Cal., to be driven by Teddy Tetzlaff. Tentative announcements of entries have been received from several other manufacturers which will bring the total list, certain to appear, up to twenty-five cars. As the field is to be limited to thirty cars, all of which must qualify at the rate of 75 miles per hour for one full lap of the 2½-mile track, it seems certain that the race will fill to the limit.

### REVISING METAL SCHEDULE

Washington, D. C., Jan. 30—The revision of the metal schedules in the house of representatives has created some warm debates, particularly in those sections of the schedule referring to reduction of import duties on axles, forgings and other parts used in motor cars. The 10 per cent duty on axles has created widespread interest. Members of the house have taken the matter up with many of the makers of motor car axles and invariably has come the demand for a higher schedule, many of the concerns declaring that it should be raised from 10 to 20 per cent, and that if the 10 per cent schedule went into force it would place a great handicap on the American manufacturer because of the cheaper labor that is used in the foreign shop.

Section 19 of the schedule refers specially to axle parts and reads as follows: "Axles or parts thereof, axle bars, axle blanks or forgings for axles, whether of iron or steel, without reference to the stage or state of manufacture, not otherwise provided for in this act, or in the first section of the act cited for amendment, 10 per cent ad valorem; Provided that when iron and steel axles are imported fitted into the wheels, or parts of wheels of iron and steel, they shall be dutiable at the same rate as the wheels in which they are fitted."

Members who spoke on the bill feared that a reduction to 10 per cent would let French, German and Belgium products in at the expense of home manufacture. Statistics showed that in 1911 there was a 15 per cent increase in the tonnage of axles parts imported but a 50 per cent decrease in the value of these parts. It proved that today the more expensive foreign axles are being imported. The new schedule would mean considerable reduction in revenue. Under the present schedule the revenue for 1911 was over \$17,000 but under the revision it would not be over \$12,000. It is expected that the 10 per cent rate will apply.

### WARREN ON NON-STOP RUN

San Francisco, Cal., Jan. 23—An attempt to break the world's non-motor-stop record is now being made by a Warren car in this city. The observers of the Warren have been appointed by the western representative of the American Automobile Association.

# Freight Rates Attacked by N. A. A. M.

Petition Filed With Inter-state Commerce Commission at Washington Protesting Against High Charges Made by Railroads—Court Enjoins Ever Ready in Klaxon Suit—Other Important Trade News of Week

WASHINGTON, D. C., Jan. 31—A general attack on freight rates on motor cars charged by the railroads through the country was made today in a petition filed with the interstate commerce commission by the National Association of Automobile Manufacturers. Seventy railroad companies are named as defendants.

The claim is made by the complainant association that shipments made over the defendant railroad companies' lines are in carload lots and less than carload lots and that the transportation charges are not governed by special or so-called commodity tariffs but are subject to the class rates of the individual or joint tariffs of the railroad companies.

The further claim is made that motor cars now constitute one of the largest items of traffic moving in carload lots handled by the railroad companies under classification rulings and without the benefit of special or so-called commodity rates.

Self-propelled vehicles were for the first time mentioned and rated by the classification committee on January 1, 1900, when it was ruled "vehicles, horseless, will be subject to the same classification as other vehicles or similar class, style and description." This rate was effective until January 1, 1904, when the official classification made rulings for self-propelled vehicles separate and apart from other vehicles, the rates being 50 per cent higher for carload and less than carload lots, varying percentages higher, according to the style of machine, than the ratings previously in effect. Motor cars also were advanced from third to first class, with a minimum weight of 10,000 pounds. These rates, regarded by the association as unreasonable and extremely burdensome, continued until October 1, 1909, when a new and higher rate was made. On July 1, 1910, a further increase was made, amounting to 10 per cent on carload lots and 25 per cent on less than carload lots, not boxed or crated.

In asking the interstate commerce commission to give it relief from the alleged excessive rates, the N. A. A. M. points out that damages in transit of motor cars are rare, that motor cars in 1904 were looked upon as the extreme of modern luxury, shipped in limited quantities of the higher priced machines, which is in marked contrast with the present large production of cars of general and varied uses and which have now to be reckoned among the necessities.

The complaining association asks the commission to require a hearing and that the defendant railroad companies be re-

quired to cease charging the present high rates and that the latter be further required to make reparation to the members of the association and any of its dealers who may have been injured by the alleged excessive rates.

## EVER READY ENJOINED

New York, Jan. 31—Special telegram—The Lovell-McConnell Mfg. Co., maker of Klaxon horns, obtained from Judge Pope of the United States district court for the southern district of New York, on January 25, a court order commanding and enjoining the American Ever Ready Co. from making, constructing, shipping, selling, advertising or exposing for sale any article of manufacture or horn so similar in appearance to the warning signals manufactured and sold by Lovell-McConnell as to deceive or be capable of deceiving any person or persons. The Ever Ready people are, by Judge Holt's order, further commanded and enjoined from making, constructing, shipping, selling or exposing for sale any article of manufacture or horn embodying the characteristic right-angled construction of the Klaxon horn as manufactured by Lovell-McConnell.

The court decision has been made as the result of the representations made in court to the effect that the Ever Ready company, its officers, attorneys, agents, clerks, servants and employees have been making, constructing, shipping, selling, advertising or exposing for sale articles of manufacture or horns similar in appearance to the Klaxon product. This latest decision is especially interesting in that it applies to horns of right-angled construction similar to the Klaxon type.

## JEWEL AND OHIO MERGE

Cincinnati, O., Jan. 29—The Jewel Carriage Co. and the Ohio Motor Car Co. have become one and the same; the Jewel company having disposed of its buggy business to the American Carriage Co. it will in the future devote its efforts entirely to the manufacture of Ohio cars. By this change the big plant formerly used in the manufacture of Jewel carriages will be used by the Ohio Motor Car Co. exclusively, thus insuring an increased capacity.

## CONCERNING LANSDEN RUMORS

New York, Jan. 31—Special telegram—Rumors have been vigorously circulated during the past week that the Lansden Co., of Newark, N. J., was about to be merged with the International Motor Co., thus giving that concern an electric line in addition to its product of Mack and Saurer commercial wagons.

The rumors were denied as far as ac-

tually accomplished facts are concerned but there was a reservation in the announcements made as to future possibilities. It has been known since last spring that there has been a leaning on the part of Mack company to take in the Lansden factory, but nothing developed at that time. After the consolidation of the Mack and Saurer, the talk was renewed, and now comes the more or less detailed report that the merger is about to be accomplished. Despite official denials it is likely that a statement will be made covering the facts in the case within the next week.

## FRANKLIN ELECTION RESULTS

Syracuse, N. Y., Jan. 27—At the annual election of stockholders of the H. H. Franklin Mfg. Co. and of the Franklin Automobile Co., held January 24, officers were elected as follows: H. H. Franklin Mfg. Co., president, H. H. Franklin; vice-president, G. H. Stilwell; secretary and treasurer, F. A. Barton; directors, H. H. Franklin, G. H. Stilwell, F. A. Barton, A. T. Brown, W. C. Lipe, E. H. Dann, John Wilkinson. Franklin Automobile Co., president, H. H. Franklin; vice-president, John Wilkinson; secretary and treasurer, F. A. Barton; directors, H. H. Franklin, John Wilkinson, F. A. Barton, G. H. Stilwell, E. H. Dann.

## ADDITION TO HOOSIER CAR MAKERS

Indianapolis, Ind., Jan. 29—Articles of incorporation have been filed with the Indiana secretary of state for the General Industrial and Mfg. Co., of this city, which will make a line of gasoline commercial motor trucks and deliveries and other articles. The company has an authorized capitalization of \$1,000,000, and some of the wealthiest men in the city are numbered among the stockholders. The company expects to begin operations about March 1. Directors of the company are: T. B. Laycock, secretary and treasurer of the T. B. Laycock Co., furniture manufacturer; W. J. Mooney, of the Mooney-Mueller Drug Co.; Charles E. Coffin, president of the Central Trust Co.; I. N. Richie, real estate broker; J. F. Lindley and E. W. Bowen, the latter a resident of Lebanon. Mr. Laycock has been elected president; Mr. Mooney, vice-president; Mr. Coffin, treasurer and Mr. Lindley treasurer. Mr. Lindley is sales manager of the Laycock company.

Announcement was made immediately following the incorporation of the company that C. H. Wallerich, general sales manager of the Mais company, has resigned that position to take charge of the motor car department of the General Industrial and Mfg. Co.



# Pacific Coast Makes Bid for Glidden

Tacoma Club Asks Motor Age to Present Its Case to A. A. A.—Westerners Want Big Tour to Finish in Rainier National Park—Scenic Wonders Are Described in Detail—Chicago May Have Start of Contest

"It is a mistaken idea that the new concern will manufacture pleasure cars," said Mr. Wallerich today. "For the present it is the intention of the company to make only light commercial cars of from 1,000 to 1,500 pounds capacity. A great deal of preliminary work already has been done, so that some of the experimental cars will be on the road within a few weeks."

## DECATUR TO MOVE

Decatur, Ind., Jan. 27—The Decatur Motor Car Co., maker of commercial vehicles, has decided to remove its plant to Grand Rapids, Mich., the board of trade of that city having agreed to dispose of \$100,000 worth of stock on condition that the officers of the Decatur company sell \$50,000 worth themselves. Through this deal President Brackett, of the Decatur company, expects to be well-equipped financially to carry on the business. The company claims to have orders for trucks sufficient to run the factory to its full capacity as soon as the new plan is put in operation. As yet no date has been set for the transfer of the plant from this city to Grand Rapids.

## CAMERON COMPANY AFFAIRS

New York, Jan. 31—Special telegram—It was announced today that the Cameron company had withdrawn its objection as to the bankruptcy proceedings at Beverly, it being stated that the proposed 10 per cent composition of its liabilities had met with insufficient support on the part of creditors. The court did not name a receiver or trustee, but such action is expected by various New York creditors in the immediate future. In December a petition in bankruptcy was filed in the United States district court at Beverly on behalf of the Eisemann Magneto Co. and other creditors. The claim of the chief creditor is in the neighborhood of \$2,500. The Cameron company had been making strong efforts to prevent a receivership until its officers could interest outside capital.

## WILLIS WILL TESTIFY

New York, Jan. 29—Taking testimony in the case of the Weed company against the E. J. Willis Co., of Boston, halted recently because of the objection raised to certain lines of testimony required of the defense. This testimony was with regard to the relation of the defendant company with some of its customers and was objected to by counsel. The United States court was asked to rule on the matter and the decision was that this line of testimony is admissible and an order to that effect was made.

CHICAGO, Jan. 31—A movement to start this year's Glidden tour in Chicago and finish it in Rainier national park, on Mount Tacoma, Wash., has been started and the matter will be brought formally to the attention of the American Automobile Association in this city Friday. The movement started in Tacoma instigated by the Tacoma Automobile Club, Harry W. Doherty being the moving spirit, who today solicited by telegraph the aid of Motor Age, through David Beecroft, editor, who also is a member of the A. A. A. executive committee.

The Tacoma club has wired the following to the A. A. A., which may be regarded as a formal application for the Glidden:

"We most earnestly urge and recommend to your executive committee that in making recommendations regarding the western terminus of the Glidden tour that you recommend the Camp of the Clouds at the snow line on Mount Tacoma in Rainier national park. We suggest the following route for a tour west via Yellowstone national park, crossing the Rocky mountains at Butte or Helena, thence via Snake river and Columbia river valleys to Portland, thence to Tacoma, making the finish on Mount Tacoma.

"Mount Tacoma is 14,562 feet high and Camp of the Clouds, at an elevation of 7,000 feet, therefore is nearly half way to its summit. Camp of the Clouds is 70 miles from Tacoma and is reached from this city over a perfect highway, the road running through the Grand Nisqually canyon and through great forests of towering Washington firs. This road is the most marvelously scenic motor car drive on the American continent. The run is made in 4 hours from Tidewater at Tacoma to the mighty glaciers rising a sheer half-thousand feet in perpendicular walls of solid ice. From these glacier points the snow-covered crest of the grand old mountain may be reached by an easy trail. Mount Tacoma is the only one of the great snow-covered peaks on the continent that may be safely and easily scaled by the amateur and is the only mountain on the continent whose snow line may be reached by motor car.

"The designation of a terminus at Camp of the Clouds would give the Glidden tour a distinction and unique attractiveness such as no similar tour in the past has had. The finishing stretch from Tacoma to Camp of the Clouds would afford a final test of endurance and climbing power that would be of immense value to every car represented, the grade nowhere being greater than 4 per cent.

"Portland's famous rose show is held June 10-15, Tacoma's great summer carnival the week of July 4 and other spectacular summer celebrations on Puget sound follow in regular order. These events would afford splendid entertainment for all members of the touring party as a climax of the long grind across the continent.

"We most emphatically commend the above to your attention and action. If still further data and information are wanted, we urge that you hold the final decision in abeyance until the same can be placed in your hands.—Tacoma Automobile Club, by Arthur G. Prichard, president."

Accompanying this was a telegram from the chamber of commerce and commercial club which reads:

"We have read the wire sent this morning by the Tacoma Automobile Club regarding the Glidden tour. This organization most heartily seconds and endorses all said in the club wire and hereby tenders its good offices to the American Automobile Association in any way that may be of value or desired. The Glidden tour will achieve all ultimates if Camp of the Clouds on Mount Tacoma in Rainier national park is selected as terminus of the 1912 run. Command us if we can be of assistance.—Tacoma Commercial Club and Chamber of Commerce, by T. H. Martin, manager."

## ATLAS CASE UNDER ADVISEMENT

New York, Jan. 30—The Weed chain suit against the Atlas Chain Co. came up in a preliminary way before Judge Lacombe of the United States court today on a motion for a preliminary injunction to take the place of the temporary restraining order that was issued at an earlier stage of the proceedings. The matter was tried out in much detail along the lines usually followed by such proceedings. The defense introduced more affidavits and presented more statements of individual instances tending to show the antecedent state of the art than are ordinarily presented. The attorneys for the complainants declare that there has been nothing radically new introduced to upset the patents. Judge Lacombe took the case under advisement.

## ANOTHER INDIANAPOLIS DEAL

Indianapolis, Ind., Jan. 28—The Haywood Tire and Equipment Co. has purchased outright the Motor Appliance Co.'s plant and M. A. C. steam vulcanizers will be made along with the Marble-Haywood type. The Haywood company has increased its capital stock to \$21,000.

## RETREADING IN QUESTION

Reader Finds Lengthy Experience With Retreaded Tires Expensive

PORT GIBSON, Miss.—Editor Motor Age—I have just read what A. D. Carpenter had to say about tires and retreading them. I must agree with him in most of what he says. Whereas my experience has not been as lengthy as his, still I feel that my whole motoring experience has been wrapped up in tire troubles. I remember a 34 by 4½ casing of one of the best makes that had some bad cuts in the tread, and that had the side walls injured from using a so-called tread. This I had repaired at a cost of about \$12, and afterward only got 7 miles' use out of it before the whole bead came loose from the tire, almost like a rim-cut, but which was caused by the vulcanizing which overcured the rubber that held the layers of fabric together.

Another instance was when a casing had a sand blister in the center of the tread. After opening it to allow the dust to come out, in less than 50 miles running in rather deep dust it had spread until it was 15 inches long. This was carefully filled in with new rubber, which proved useless, as the rubber was a poor grade. I had it filled again, but this time it blew out badly, completely ruining the casing. Again I am sure too much vulcanizing caused it as the casing had no chance for the exposed fabric to rot, and cause the blowout. I have a pair of 34 by 4 casings that have run more than 8,000 miles, the car weighing all the tires should carry. One has suffered a very small blowout, which I repaired and it is holding nicely. I find it true tire economy to have a good small electric or steam vulcanizer and to repair my own tubes and keep casings free from blisters and cuts.

Now, some time back I saw some discussion about so-called tire treads and protectors. I have had quite a little experience with these, and it is all sad. I first had a pair of buckle-on treads. They helped prevent skidding a little in mud, but they wore down the side walls of the tire until the fabric was exposed, and eventually ruined the tire while saving the tread. False economy! A pair of protectors that make it possible to use weak and worn-out casings under them, thereby getting increased mileage out of old shoes, again is false economy, for where the casings were weak they put excessive strain in the leather protector and it stretched and the casing cracked and the fabric split and the tube was pinched. I know I must have had fifty pinches and many ruined tubes. After the protector had been run around 2,000 miles it was worn and full of holes and had stretched so that when deflated suddenly from a bad pinch the air all escaping immediately, it would run off the rim before the car could be stopped, sometimes tearing the tube badly. When used over a



## Two Readers Against Present Method of Repairing Worn Treads and Both Believe that Purchase of New Tires is More Economical

new or perfect casing protectors give less trouble but run the casing so that it is not fit to use without them.

I got 3,000 miles out of mine and had to pay an additional \$15 for repairs and patching of the protectors, and for the same money invested in new casings I could have bought two that would have given me 10,000 miles apiece.

I often have wondered why the magazines devote so little space to the discussion of tires and tire troubles, when nowadays more than three-fourths of our mishaps in motoring are tire troubles. Let us have more on the subject of vulcanizing at home, etc.—Tired.

### ALUMINUM FINISH FOR LAMPS

Pratt, Kas.—Editor Motor Age—As I have received so much valuable information through the Readers' Clearing House pages, and the question of painting or enameling lamps and brass equipment of cars has come up so often, I desire to give the readers of Motor Age the benefit of my experience along this line. It is a matter to which I have given much study but never arrived at a satisfactory conclusion until recently.

I will say in the beginning that nickel trimming is my preference, but a man who has brass trimmings on his car can, by cleaning the brass and painting it with aluminum paint give them an aluminum finish that looks almost like a silver finish. It will stay and requires no particular experience to put it on which can be done with a small common paint brush. After the first 24 hours it can't be taken off. Heat only makes it stick the tighter. It costs about 30 cents for enough to paint the brass on one car and takes about 3 hours' work. It looks better than unshined brass and requires no further attention after it is put on. This paint is prepared for radiators, steam pipes, stoves, etc., and the heat of the radiator or lamps will not affect it. It can be put on once a year or oftener if desired as it is inexpensive.—J. W. Farmer.

**EDITOR'S NOTE.**—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired

### RETREADED TIRE MILEAGE

Pennsylvanian Says Necessary Vulcanizing Usually Destroys Casing

DU BOIS, Pa.—Editor Motor Age—I agree with A. D. Carpenter in his article, "Does Retreading Pay." Having had 1 year more experience than he, I wish to support him in his belief that it does not pay. The first question we must ask ourselves is, "Do we get as much mileage out of a retreaded tire as we would from the same amount of money invested in a new?" In my first few years I had a number of tires retreaded, all of which blew out on very short service, hardly returning enough mileage to pay for the express. I discussed the condition with several drivers, and found they had the same experience. Since then I never have retreaded a tire, and have received better mileage. It seems that the excessive heat, which is required to vulcanize the rubber either rots the fabric or destroys the adhesive qualities of the different plies, and in a short time causes a blowout.

In my opinion, a tire, if well taken care of, will blow out before it needs retreading. Rubber wear is caused by fierce clutches and too sudden braking, but the most damage is caused by cuts and holes in the rubber in which sand, dirt and water work their way between rubber and fabric, and in a short time separates sections of rubber, which peel off the tire. This can only be remedied by filling all cuts and holes as soon as they appear.

Another part of the tire question is the blowout. After experimenting with blowouts on a number of tires, I came to the conclusion that it was a waste of money to have them repaired. The repair can be a good and strong one, but it does not strengthen the rest of the tire, which is quite weak from its long use, and in a short time will blow out in some other spot. I never received more than 200 miles after a repair and in most instances less than 100. In each case the second blowout was far from the first, demonstrating that the whole tire was too weak when the first blowout occurred. Of course, if the tire is quite new and a blowout is caused by a very deep cut, then it would be very profitable to have the tire repaired, but in my experience all blowouts have occurred in the best looking part of the tire.—W. J. Marlin.



# Clearing House

The Gas Starter Discussed From Different Viewpoints—One Suggests Easily Constructed Device and Another Figures Out Power

## DESIGNS GAS ENGINE PRIMER

Colorado Motorist Substitutes Acetylene Generator for Tank in Starting Motor

GRAND JUNCTION, Colo.—Editor Motor Age—In a recent issue of Motor Age a reader told of using a Prest-O-Lite tank to start the engine when it is cold. Not having a Prest-O-Lite tank and wishing to give this a trial I hit upon the idea of using a generator which was taken off the car when electric lights were installed. I was very much surprised as well as pleased with the result. I tried this out one morning when it was 8 below zero and the car had stood overnight in an unheated garage. I was surprised to find that although I hardly could turn the crank, the engine was so stiff and cold, still I only gave it half a turn when it started right off as if the engine had been running and I had just shut the power off for a few minutes. Heretofore I have had to pour hot water in the radiator, over the carbureter, and prime the cylinders with the gasoline. This certainly is a good thing.

I also find that during the day if the engine does not become too cold that it will start on the spark after being primed with the generator. I am sure that in the summer time this will act as a self-starter.

In using the generator I used 1/4-inch tubing, running from the generator to a hole I drilled in the intake pipe or manifold, soldering the tubing to the intake pipe. Then to overcome the vacuum and consequent suction in the tube which might suck up particles of the carbide into the tube I used a small valve at the connection of the tubing to the generator which is closed while the engine is running and is open when the generator is put in action. To allow more water to drip through the valve, admitting the water to the carbide, I simply enlarged the opening in the valve, thus it will require but a few seconds for enough water to drop onto the carbide to make sufficient gas for starting. The method is shown in Fig. 1.—R. B. Morris.

This suggestion is a very good one and is worthy of a trial by those who have trouble in starting in cold weather. The same method of introducing acetylene to the manifold is employed in several of the motor starters described last week in Motor Age, except that a gas tank is employed instead of the generator. If you could arrange to turn on the water

to the generator and open the shut-off valve from the seat, you would have a motor starter that would work a good part of the time. The procedure would be as follows: When stopping the motor, open the water cock; shut off the magneto; open the shut-off valve, keeping it open till the motor stops. If the motor is in good condition and has not stopped on dead center, it should start on the spark several hours later.

## QUESTION OF SPEED

Waukomisk, Okla.—Editor Motor Age—I have been a reader of Motor Age for several months and now would like to ask a few questions:

1—How many miles per hour can the touring model make, also the Hupmobile runabout?

2—Is an en bloc motor more silent than one with the cylinders cast separately.

3—Does the E-M-F Co. make a two-passenger car? If so, what is the price? Is there any car on the market selling for \$1,100 or under that will make 75 miles an hour?

4—What are the specifications of the 300-horsepower Fiat?

5—Is the Metz 22 a friction drive machine?—J. H. Strickler.

1—The Hupmobile touring car is supposed to make 45 miles per hour and the runabout 42 miles per hour. At this speed it is very hard to hold the car on the road. By retiming the magneto so as to materially advance the spark it is said that a speed of 60 miles an hour can be obtained.

2—Not necessarily.

3—Yes. There is an E-M-F two-passenger roadster selling at \$1,100. Specifications of the car were given in Motor Age January 4. There are no official records of a car selling at \$1,100 or under averaging a speed of 75 miles an hour.

4—The Fiat racer known as the 300-horsepower car is a special construction, the specifications of which are not at hand.

5—Yes.

**EDITOR'S NOTE.**—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated.

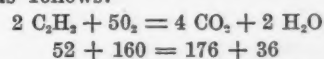
## ACETYLENE MORE POWERFUL

Iowan Takes Exception to Starter Advertisement and Offers Proof

CHARLES CITY, Ia.—Editor Motor Age—In the issue of Motor Age, January 11, appears the advertisement of an acetylene gas engine starter with the following statement: "While not so powerful as gasoline, even when mixed in the most efficient proportions, acetylene gas nevertheless is a uniformly dependable power." The writer questions whether it is a fact that acetylene is less powerful than gasoline and, although he has no experimental data with which to back up his reasoning, the following calculations can be followed easily by anyone who has studied the elements of chemistry, and it would seem to indicate that the correct amount of acetylene gas mixed with 1 pound of air or oxygen will give off a trifle over 11 per cent more heat units than the same amount of oxygen in a correctly proportioned mixture with gasoline, hence more power.

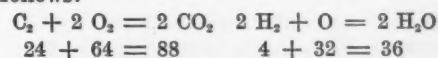
It is assumed, first: Both gasoline vapor and acetylene gas will generate 20,000 heat units, B. T. U., per pound; second, the gasoline composed of 84.7 per cent carbon, C<sub>8</sub>, and 14.3 per cent hydrogen, H<sub>2</sub>, by weight, this being a sample reported in Carpenter & Dietrich's "Internal Combustion Motors;" third, molecular weights, carbon, C<sub>8</sub> = 24; hydrogen, H<sub>2</sub> = 2; oxygen, O<sub>2</sub> = 32.

Acetylene gas = C<sub>2</sub>H<sub>2</sub> united with oxygen as follows:



That is, 160 pounds O<sub>2</sub> require 52 pounds C<sub>2</sub>H<sub>2</sub> or 1 pound O<sub>2</sub> requires .325 pounds C<sub>2</sub>H<sub>2</sub>. 20,000 B. T. U. per pound × .325 pounds C<sub>2</sub>H<sub>2</sub> = 6,500 B. T. U. derived from a correct amount of acetylene gas mixed with 1 pound of oxygen.

Gasoline: 84.7 per cent C<sub>8</sub>, 14.3 per cent H<sub>2</sub> by weight, united with oxygen as follows:



From the above we see (64 + 32) = 96 pounds O<sub>2</sub> requires 24 pounds C<sub>8</sub> + 4 pounds H<sub>2</sub>, or 1 pound O<sub>2</sub> requires 1/4 pound C<sub>8</sub> + 1/24 pounds H<sub>2</sub>. 20,000 B. T. U. per pound

$$= 5,830 \text{ B. T. U.}$$

1/4 pound × 85.7 per cent derived from the correct amount of gasoline mixed with one pound of oxygen.

The difference between 6,500 and 5,830 indicates that there is about 11 per cent more heat developed in burning the correct amount of acetylene gas than will be developed by gasoline with the same amount of air or oxygen. The figure, 20,000 B. T. U. per pound, is an approximation, as is also the gasoline composition, but these figures are good averages and are very commonly used, so that the above deduction holds fairly well from a theoretical standpoint and there is no reason which

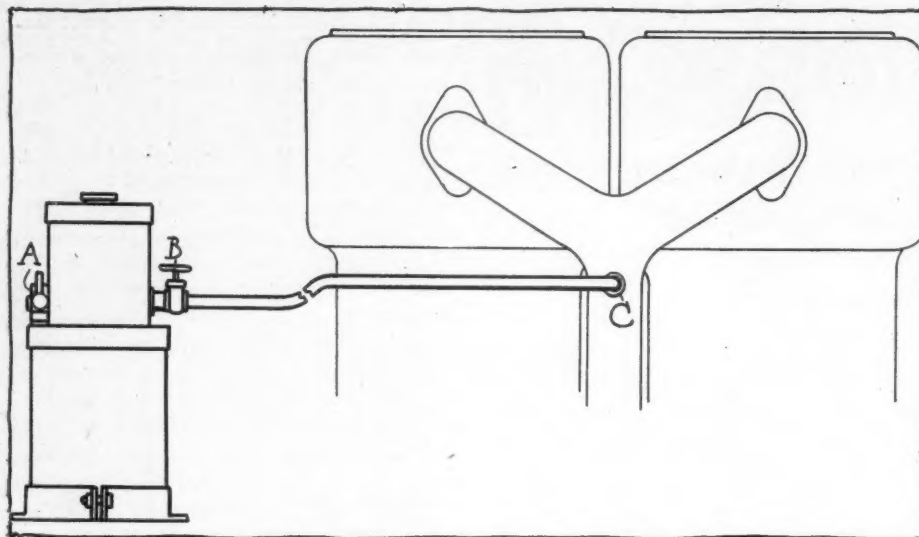


FIG. 1—METHOD SUGGESTED FOR PRIMING MOTOR FROM ACETYLENE GENERATOR. A, WATER COCK; B, SHUT-OFF VALVE; C, INTAKE CONNECTION

the writer can see at present to change the results in actual practice.—C. E. Frudden.

#### CLEANING AND POLISHING CAR

Waterloo, Iowa—Editor Motor Age—Will Motor Age kindly publish in an early issue an article on how to keep a car looking as new as possible, and what kind of body polish, if any, to use.—A Reader.

An article along the lines you wish appeared in Motor Age August 24, 1911, in much more detail than space permits here.

There is a great difference of opinion as to how the washing of the car should be done, but all authorities agree upon one thing, and that is the plentiful use of clear water as the first step. Clear water will wash off dust, dirt and mud, but it will not touch the grease or oil and leaves the car with a dull, dingy, streaked, lusterless appearance. Then make a thick suds with a neutral potash soap.

Before applying a suds, rinse the car well with a stiff stream of water from the hose, so as to loosen up all the dust and dirt in order to prevent scratching the surface. This not only loosens the mud which has become hardened, but reduces the probability of scratching the varnish when washing with a sponge. Then, with a clean sponge, apply a heavy suds, rinse off at once with clear water and a fresh sponge and wipe dry with chamois skin or cheese cloth. With some soaps, if the varnish surfaces are thoroughly washed and rinsed with cold water, the use of chamois skin is not necessary. Never use for a washing with soap the same sponge that has been employed for washing off the dust and dirt; never use hot water on the painted or polished surfaces. Cold water is preferred, but it may be just warm enough to have the chill taken off. Do not be afraid to use plenty of water. Remember that any soap is liable to injure a

highly polished surface, but it will not do so if the parts are cleansed thoroughly with clear water after the soap is used.

It often is found with some soaps that drying with a woolen cloth is preferable to the use of either chamois or cheese cloth, as it sometimes gives a higher luster.

Most manufacturers of motor car soap advise against applying any other polish after the final drying. They say that furniture polish and the like is very apt to contain oil or turpentine, or both, which dissolves the coach finish, dulls it and tends to leave a thin skin or coating which covers up the original polish. Other soap manufacturers recommend the use of first-class body polish oil which is supplied by various oil manufacturers. A light coating of this oil is rubbed over the body and then wiped off by the use of a soft cloth. The latter authorities say that the advantage of applying the oil is that afterwards the dirt does not stick to the car as it would otherwise, and if the oil is used it will not be necessary to use soap again for some time, as most of the dirt and dust may be removed by a duster.

#### TIGHTENING BRAKE BANDS

Dayton, Ohio—Editor Motor Age—Will Motor Age kindly answer through the Readers' Clearing House the following questions:

How may the brake bands on a 1910 model Hupmobile be tightened so as not to rattle? The looseness does not seem to be in the springs, but rather at the pins or bolts at the end of each band. These pins seem to be like rivets, and I am at a loss to know how to take up the lost motion and wear.—R. K. Welliver.

The brake bands may be tightened by fitting new and slightly larger pins or by rebushing the old ones. After the bands have been rendered noiseless as above suggested, oil the pins regularly, and they will not wear loose enough to rattle again for a long time.

## Weight of Flywheel

### Formula for Determining Proper Size of Balance Wheel Given Kansas Man

LAWRENCE, Kas.—Editor Motor Age—Through the Readers' Clearing House kindly answer the following:

1—If an 80-pound flywheel 14 inches in diameter is replaced by one 16 inches in diameter how much lighter should it be to get the same results? How is it figured?

2—Why are there so comparatively few makes of underslung cars on the market? Will Motor Age please give me its opinion?

3—If the low-tension magneto with non-vibrating coil will furnish electricity for the lamps and at the same time perform the regular work properly, why is it not in more general use or adopted by the car makers as an option of regular equipment in place of the high-tension magneto?

I should think this would be a very economical system and in fact two complete and independent systems of this kind should not cost as much to install as the high-tension magneto with storage battery and gas tank and certainly would cost less to operate. This would be a very interesting topic for the editor, and readers who know, to discuss through the columns of Motor Age, as there are many readers who would appreciate some information on the lighting and combination lighting and ignition systems.—Reader.

1—A 16-inch flywheel to replace an 80 pound 14-inch flywheel should weigh 77 pounds to give the same results. This is calculated from the following formula,

$$MP \times A \times S \times N$$

$$W = \frac{\quad}{2560 \times D} \quad \text{where } MP = \text{mean com-}$$

pression pressure, A=area of cylinder in square inches, S=stroke in inches, N=revolutions per minute; W=weight of flywheel rim and D=diameter of rim.

2—The chief difficulty in the use of the underslung frame is the necessity for the employment of larger wheels to give the same road clearance with this construction as with the other method of suspension. Nevertheless, there is an increasing number of cars with underslung frame each year. A review of the cars for 1912 will show many that have adopted it for the first time this year. In general, this construction gives easier riding qualities, less liability to turn turtle, and more speedy appearance.

3—Ignition magnetos are usually designed to supply current for ignition alone and are not expected to stand the overload of the lamps. Several magnetos are on the market this year designed to furnish current for both ignition and lamps, notably the Remy and Splitdorf. A discussion of these systems with others will be found in the article on electric lighting systems in another department of this issue.



## Lining Up Pistons

### Two Methods of Alignment Described and Illustrated for Canadian

**S. T. MARYS, N. B.**—Editor Motor Age—Please answer the following question through the Readers' Clearing House columns: In replacing pistons in cylinders when assembling an engine, which is the proper way so as to get the best adjustment on the connection rod bearing, first putting pistons in cylinders, then connection to crankshaft; second, connection piston to crankshaft and then putting on cylinders?—A. J. Thompson.

If it were possible to conveniently scrape-in, and thereby adjust a connecting rod bearing of a motor without removing the piston and rod from the cylinder, this would be by far the most practical method, as one would be assured that the rod and piston would be in proper alignment when the job was finished. But as this is possible only in such motors as the Winton, whose crankcase is split vertically and whose rods and pistons may be readily removed without disturbing the crankshaft or the cylinders. The usual method is to scrape the connecting rod bearings to fit the crank pins while the crankshaft is removed, then to see that the piston lines up squarely at right angles with the top of the crankcase before the cylinders are secured thereto.

This may be done with a try-square, as shown in Fig. 2; or with a special gauge such as is shown in Fig. 3. For merely taking up a little lost motion in a connecting rod, scraping is not required. Shims of graduated sizes often are provided for this purpose and if one or two of these are removed from either side of the bearing cap the bearing can be made sufficiently tight to endure for a considerable length of time.

Care should be taken in removing shims so that the bearing is not made too tight. Before taking up a rod the petcocks or the spark plugs should be removed from the cylinders to relieve the compression therein, then the workman should turn the flywheel over a few times by hand to see how hard it works. It should turn just as freely after the bearing is tightened. If no shims are provided the bearing cap may have to be filed off a trifle; this, however, is no job for an unskilled amateur.

Inasmuch as there are many young men making repairs on motor cars who do not know of the errors that often are made in assembling a motor after an overhauling or after a connecting rod, piston or cylinder has been refitted, a few hints on the subject may be instructive to some such repairmen; and, perhaps, discourage the amateur repairman from attempting adjustments requiring more skill and experience than he possesses. In the Peerless repair shop, Chicago, are to be found many special tools of an ingenious nature that

greatly facilitate repairs and adjustments and serve to prevent errors. One of these is shown in Fig. 3. It consists of a jig J made by sawing off the base of a pair of old cylinders and facing off the tops of the cylinder walls T so that they present a straight, true surface, parallel with the base of the motor crankcase.

When the piston is lowered into this jig so that it is on its bottom center, the top of it comes about  $\frac{1}{4}$  inch below the top edge T of the jig. If the piston is not perpendicular to the crankshaft, as it should be, it will not slide through the jig readily, and the fault would be found by raising the piston to its upper dead center and placing a try-square against the side of it as illustrated. In doing this, however, it should be born in mind that pistons generally are a trifle smaller in diameter at the top than below the piston pin. This is so slight as to hardly be noticeable; and if the piston lines up with the perpendicular portion of the square from the bottom to the piston pin, the alignment is quite correct. Any binding of the piston in the jig during a stroke or the absence of sufficient side play in the rod bearings would be shown up by this device.

#### CAUSE OF MISSING

**Kiowa, Kans.**—Editor Motor Age—Please explain through the columns of Motor Age why my engine will miss firing after running for 8 or 10 miles and getting warmed up. It does not get hot enough to boil the water, and works fine when first starting out, but after running for about 6 or 8 miles it will begin to miss and lose power. The spark plugs are all good, the engine is in first-class shape, and I cannot locate the trouble, which no doubt is very small if I could only get at the right place. I am using a model B Stromberg carbureter and have the Atwater Kent ignition system.—L. R. Benton.

Look for fouled spark plugs due to poor mixture or excessive oiling; if not that look for sediment in gasoline tank or more probably in carbureter. Dirt in carbureter is likely to stop up the needle valve intermittently when motor gets to pulling good. Trouble might be due to worn distributor.

It may be found that the compression in one cylinder is weaker than the others,

due to the fact, perhaps, that one of the valves is not seating tightly because the pushrod adjustment is incorrect. There should be at least 1-64 inch clearance between the end of the rocker arm and the valve stem when the valve is tightly closed. A weak valve spring also would give trouble such as yours. The motor would be liable to run nicely and regularly at low speeds, but would miss badly and generally intermittently when the motor was speeded up.

To test for a weak valve spring, run the motor at sufficient speed to bring about the misfiring, then press on the valve springs so as to increase their tension against the seat of the valve stem. If the trouble is from this source the missing will continue. The remedy is either to fit up a new spring or to put a set of washers between the end of the spring and the valve seat.

#### SPARK IS TOO LATE

**Ipava, Ill.**—Editor Motor Age—I have a Haynes model 19 equipped with Schebler carbureter model L, Splitdorf magnet, non-vibrating coil and Kingston timer. I use Crown gasoline, Valvoline medium oil, and the exhaust is so hot I cannot hold my hand within 12 inches of the pipe. What shall I do?

2—Is it good practice to cut away the sides of the oil troughs so that it will not splash so much oil to prevent smoking?

3—There are no shims in the crankshaft bearings. What is the best method of adjusting?

4—Would I get more power by installing a cutout direct from the exhaust pipe?—A. Shields.

1—It is very possible the ignition is timed so that the spark occurs too late. This would result not only in excessive heating of engine and exhaust manifold, but in loss of power as well. An excessively rich mixture may be responsible. This would be indicated by black smoke from the muffler.

2—Yes; but be careful not to lower the oil level too much.

3—It will be necessary to rebabbit the bearings.

4—Yes; a little more power will be obtained by the installation of a muffler cutout.

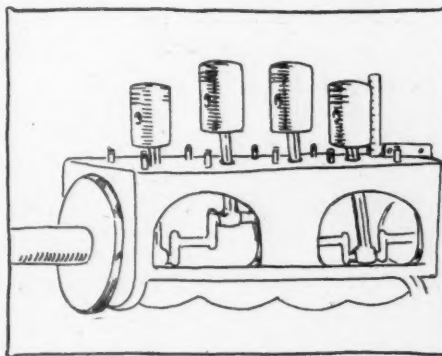


FIG. 2—EASY METHOD OF LINING UP PISTONS

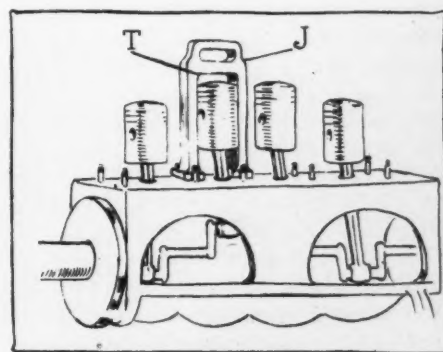


FIG. 3—SPECIAL JIG FOR PISTON ALIGNMENT



**AFTER a Club House**—Jacksonville Motor Club, of Jacksonville, Mo., is considering and will probably accept plans presented for a clubhouse to cost \$12,000.

**Gilbreath Hoosiers' Secretary**—Directors of the Hoosier Motor Club, Indianapolis, have elected W. S. Gilbreath secretary of the club, succeeding P. P. Willis, who resigned on account of the press of other business. Mr. Gilbreath has been assistant secretary for some months.

**Oakland to Contest**—Howard A. Bauer has been re-engaged to handle the contest work of the Oakland company for the 1912 season. The Oakland company will adhere to its established rule of participating in hill-climbs and endurance and reliability tests, possibly entering a few road races in addition during the coming season.

**New Club at Dwight, Ill.**—Motor enthusiasts of Dwight, Ill., and surrounding territory have organized the Dwight Motor Club, with the following officers: Theodore Haynes, president; Ed Furgeson, vice-president; Burton Orr, secretary; F. J. Vickery, treasurer. The members desire to cooperate with surrounding towns in the making of better roads. Dwight being on the proposed hard road from Chicago to St. Louis will look forward with interest to the time when work will be started on this road and will do all in its power to help make it a certainty.

**Re-elected for Eleventh Term**—Hurlbut W. Smith, who has served 10 years as president of the Syracuse Automobile Club of Syracuse, N. Y., has been re-elected, despite his attempt to retire. His brother officers chosen are: H. W. Chapin, first vice-president; Alexander T. Jenney, second vice-president; Forman Wilkinson, secretary and treasurer; E. L. Pierce, W. L. Brown, John H. Valentine, James C. De Long and Dr. Archer D. Babcock, directors. Eighteen new members were elected and amendments simplifying club procedure were adopted. A resolution was passed requesting the state highway commission to grant an additional mileage on the Collamen road between the Cicero swamp and Bridgeport, and some stretches

START OF PUSHMOBILE RACE AT SAVANNAH

## FROM the

closing gaps in improved roads in that vicinity. The supervisors also will be asked to improve the roads between Cedarvale and Marcellus.

**Zengel to Drive Stutz**—Len Zengel, winner of the Elgin National, has been signed to drive one of the two Stutz cars in the 500-mile race at Indianapolis. Gil Anderson will be his team mate and Billy Knipper is the relief driver.

**Cuban Trip Abandoned**—Owing to the lack of insufficient reservations, the Indianapolis Trade Association has abandoned plans for its southern and Cuban trade extension trip which was to have started February 11. The Indianapolis Commercial Club has also postponed for 1 year a trip through Mexico it had planned

in February and March for Indiana manufacturers. It is said that manufacturers of the state are of the opinion that the present time is not propitious for trade extension trips.

**Can Use Telephone Poles**—The Wisconsin State Automobile Association has just gained a concession which will permit of most effective signboarding on across-the-state routes. It is the official permission to use telephone poles throughout the state for marking routes, similar to the scheme in use in the state of Iowa. The permit gives the W. S. A. A. the right to paint a band or stripe around any pole, excepting those within the corporate limits of cities and villages, and without any other marks, letters or figures. The



EXCITING FINISH IN SAVANNAH GRAND PRIX





AFTER THE GUN IN THE SAVANNAH PUSHMOBILE RACE

## Four Winds

association is the only privileged character in this relation in Wisconsin and the concession therefore is regarded as a most valuable one.

**Big Pushmobile Meet**—Promoted by the Savannah Press and handled by officers of the Savannah Automobile Club, a pushmobile meet recently was run off at Savannah, Ga., which was participated in by 144 youngsters. The course used was in the park extension, adjoining Forsyth park, where there is a cement sidewalk which encircles four blocks. Fifty policemen guarded the course and 10,000 people watched the races. Each driver was allowed four pushers, using only one at a time, however. The pushmobiles were named after popular makes of racing cars

and among the winners were the Lozier and Fiat, the latter capturing the grand prize race which wound up the meet.

**Cheap Signboards**—The Automobile Club of Benson, Minn., has reported to Colonel F. M. Joyce, first vice-president of the A. A. A., Minneapolis, progress on road sign work, and the almost ridiculously low cost for the signs and work. The posts are cedar 10 feet long, painted on lower 3 feet, with three coats of creosote paint, upper 7 feet, with two coats white outdoor paint. The top sign is 12 by 24 inches and the lower sign 6 by 24 inches, of 16-gauge galvanized sheet iron. Signs are painted first with red lead and then two coats of white paint are put on. Three-inch letters are put on with card-

board stencils. Town boards pay \$1 apiece for the signs. The first twenty-five cost \$18.83.

**New Canadian Body**—The Canadian National Automobile Association has been formed, fashioned along the same lines as the American Automobile Association.

**Signs of the Times**—Two salvage corps horse trucks are to be replaced with motor cars and a new house built in a more central location in Minneapolis. The St. Paul fire department has bought for \$6,000 a combined chemical engine, hook and ladder and hose cart to carry twelve men.

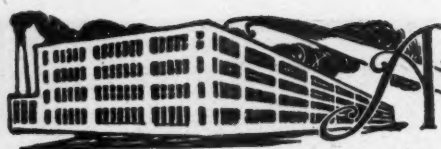
**Denver Club Moving**—The Denver Motor Club will move its headquarters from the third floor of the Majestic building to the top floor, which it will occupy entirely. New billiard and pool rooms will be opened, a large and well-equipped information bureau established, and a more extensive work in general undertaken than was possible in its former inadequate quarters.

**Dallas Club Election**—The new officers and directors of the Dallas Automobile Club, of Dallas, Tex., are as follows: President, George W. Baker; first vice-president, A. V. Lane; second vice-president, W. A. Fraser; third vice-president, F. E. Keith; treasurer, C. B. Gardner; directors, W. A. Fraser, S. H. Boren, Sam Hogsett and F. E. Keith. The holdover directors are A. V. Lane, C. B. Gardner, E. H. R. Green, George W. Baker and A. A. Slaughter.

**Toured in Ohio**—According to a supplementary report made by the Ohio registrar of motor cars, there were seventy-one foreign cars registered in Ohio during 1911. That number of owners, living outside of the state, desired to tour in Ohio and secured licenses. The list of outsiders is: Indiana, 8; Kentucky, 10; Canada, 3; Florida, 1; Illinois, 1; Mississippi, 1; Michigan, 6; Missouri, 2; New Jersey, 2; New York, 12; Oklahoma, 1; Pennsylvania, 9; Rhode Island, 2; South America, 1; Vermont, 1; District of Columbia, 2; West Virginia, 9.



PUSHMOBILE RACES AT SAVANNAH ATTRACT THOUSANDS



## Among the Makers and Dealers



BUILDING UNDER DIFFICULTIES—HUPMOBILE PEOPLE USE TENT IN ERECTING NEW FACTORY

**MEANS** a Plant at Galveston — Good progress is being made with the plans for the establishment of a motor car factory at Galveston, Tex. The Galveston Commercial Association, which is promoting the new industry, expects to close the details for the enterprise very soon.

**Luverne Increases Stock**—The Luverne Automobile Co.'s stockholders have voted to increase the capital and enlarge the factory at Luverne, Minn. A large part of the stock was subscribed at the meeting. Tentative plans for a five-story addition were turned over to the directors for action.

**Winnipeg Changes Show Plans**—The Winnipeg Automobile Show Association is the name given a new organization at Winnipeg, Manitoba. The object of this association is ostensibly to promote a motor show during bonspiel time next month. The advertised show under the auspices of the Winnipeg Motor Trades' Association will not be continued because it would have debarred outside exhibitors. The trade association went on record, however, as being not opposed to members showing at an independent show.

**Building Factory Under a Tent**—The cold snap in Detroit during the week beginning January 15 paralyzed traffic and practically put the builders out of commission for the time being. There was only one bricklaying job going on in Detroit during that time and that was due to the ingenuity of the officials who are pushing the work of the construction of the new factory that the Hupp Motor Car Co. is building at Mt. Elliott and Milwaukee streets. When the contractor threw up his hand and said that he would have to take his bricklayers off the job of laying the walls for the front of the administration building of the new factory, J. Walter Drake, president of the company, immediately got busy and hired an im-

mense circus tent, 150 feet long by 50 feet wide, and installed a boiler and a salamander, and by afternoon of the same day the bricklayers and iron workers were working comfortably at a temperature of 65 degrees.

**Garage Men Organize**—The garage owners of Des Moines, Ia., have organized the Des Moines Garage Association, whose purpose is to establish uniform prices for storage and labor and in general to promote the best interest of the garage and accessories men of the city. Nearly all

the dealers in the city are members. J. C. Bernard was elected president and the other officers are L. H. Tietge, vice-president; C. F. Claybourne, secretary, and Sam Johnson, treasurer.

**Question of Delivery**—Henry Ebersole, president of a bank at Arcadia, O., won a victory against Willis Hakes, a Fostoria car dealer, in the common pleas court in Findlay, O. Hakes sold Ebersole's son a runabout last spring in Toledo, and one morning early the two were driving home. In turning a corner the car turned

## Texas Reports the Discovery of Rubber Possibilities in Cotton-Bolls

**A**USTIN, Texas, Jan. 29—The manufacture of rubber from unopen cotton-bolls may become a large and very profitable industry in Texas and the other southern states. It is claimed by W. P. Wilson, director of the Commercial museum, Philadelphia, that a process has been discovered for extracting a "substitute for vulcanized rubber" from the green cotton-bolls and that the cost of manufacturing the product is considerably less than that of ordinary rubber.

In a recent letter to Governor O. B. Colquitt on the subject Mr. Wilson says that the utilization of the unopen bolls in the manner proposed will give them a value of 3 to 4 cents per pound, whereas they are now worthless. It is estimated that about 15 per cent of the bolls of the cotton plants get caught each year by cold weather and do not open; in other words, they do not produce any staple. It long has been known that these unripe bolls contain a sticky substance, akin to rubber, but until the discovery of the process noted by Mr. Wilson for extracting and congealing this ingredient was made, it was generally supposed that it had no commercial value.

If the farmers are able to obtain 3 or 4 cents per pound for their unopen cotton-bolls it will bring them many millions of dollars of additional revenue from that crop each year. It is stated that the demand for rubber has increased enormously during the last few years, not only in the United States but in many other countries. This is due to the growth of the motor industry and the development of the electrical business. If the discovery that a "substitute for vulcanized rubber" can be obtained from unopen cotton bolls is what Mr. Wilson claims for it in his letter to Governor Colquitt, it may mean the opening of a new and very large source of supply for the product.

During the last few years wonderful development has taken place in the manufacture of rubber from the wild guayule shrub which grows profusely in certain parts of northern Mexico and the upper border region of Texas, and it is considered not improbable that what has been accomplished with guayule in the matter of utilizing its rubber substance may also be done with cotton bolls in the near future. The Texans are awaiting the development of this promised new industry.



turtle, young Ebersole was killed and the car was burned up. Hakes sued the father for the value of the car. The jury found against him, decided that the car was not Ebersole's until it had been delivered at his home. Hakes claimed the delivery was made at Toledo.

**Pence Buys More Property**—Harry E. Pence, of the Pence Automobile Co., of Minneapolis, has bought a site for a new six-story building at Tenth street and Hennepin avenue for \$173,000. It is 132 by 310 feet on the ground. The building will cost \$150,000. He will sell or lease the present Buick home at Eighth street for commercial purposes.

**Russia Buys Gramm Truck**—H. A. Goddard, general sales manager of the Gramm Motor Truck Co., who is at present in Europe, has notified the company that the war department of the Russian government, which has been experimenting with a Gramm truck for 2 months, has purchased the vehicle, it being the first power wagon of American manufacture Russia has bought. Mr. Goddard also has closed agencies for Russia, Norway and Sweden.

**Big Ford Shipment**—The Ford Motor Co. last Saturday shipped from New York 547 Ford cars, which are going to England. This, it is claimed, is the largest shipment of American cars ever made, the cargo taking up 155,049 cubic feet of space in the hold of the Manchester Importer. Two more big English shipments are planned. One that will go February 2 will consist of 112 cars, while another booked to leave Boston February 9 will be made up of 234 cars.

**Indianapolis Wants S. A. E. Branch**—A meeting will be held in Indianapolis soon to organize a local branch of the Society of Automobile Engineers. The following committee has been appointed to arrange for the meeting, which will be held in the rooms of the Hoosier Motor Club in the Claypool Hotel: W. G. Wall, of the National Motor Vehicle Co.; F. E. Moscovics, of the Remy Electric Co.; Howard Marmon, of Nordyke & Marmon; Charles E. Davis, of the Warner Gear Works, and Charles B. Crawford, of the Cole Motor Car Co.

**New White Service Building**—The White Co.'s new service building in New York, located on West Fifty-seventh street, between Eleventh and Twelfth avenues, has been completed, and is now in full operation. The building, while having 25,000 square feet of floor space, is only one story high, thereby eliminating elevators and the congestion and delay which necessarily prevails when a service building has small ground area but is several stories in height. Another feature of the construction is the total absence of all posts and pillars, the roof being supported by trussed spans.

**Rayfield Company Election**—The Rayfield Motor Co., of Springfield, Ill., which intends erecting a new plant at Chrisman, Ill., has elected F. K. Thayer president of

## American Tells of Motoring Conditions As They Exist at Present in Sweden

SAN FRANCISCO, Cal., Jan. 23—Some interesting sidelights on motoring in a country where motor cars are few are given by A. Akesson, a well-known business man of this state. Akesson has just his native land. Speaking with a representative of Motor Age, he said:

"A duty upon the machine is levied, based upon 15 per cent of the factory price of the car, plus the freight from America. With the payment of the duty you are given permission to drive your car for 30 days in the country, subject to a renewal of 60 days. After the expiration of the 60-day limit you must join a motor club for 10 months, and if you decide to go home at the end of that time, or sooner, you are refunded the entire amount that you have paid out; or if you decide to stay in Sweden longer your duty reverts to the government.

"Road conditions in Sweden are pretty fair. Each landowner is responsible for the road conditions fronting his property. Once every quarter notice is given that the roads will be inspected by the government agents, and if the owner has not put his road in good condition the government at once puts a man on the job, charging the landowner therefor. The latter method is more expensive and consequently the

roads are nearly always in pretty fair shape.

"During my visit in Sweden I drove my E-M-F more than 3,000 miles and had many experiences which savored of the unpleasant variety, due to the fact that the prejudice against the motor car is very marked, although in the city of Stockholm there are many in use. In several instances I have encountered persons who positively disputed my right to drive 'such a vehicle' over the public highways. But I took all these incidents good-naturedly, and by the time I left the surroundings of my own home at Helsingborg I had won the respect of everyone and had them all convinced that I was not a scorcher, but one who always drove carefully and always had my car under perfect control.

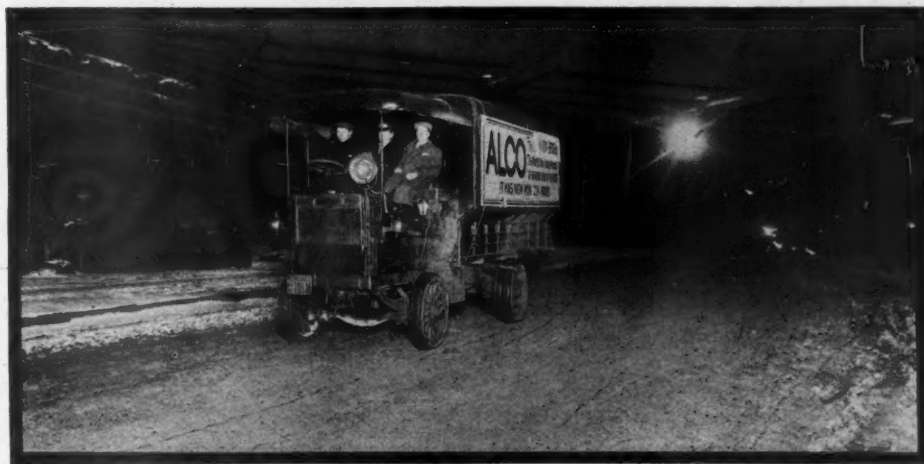
"American-made cars eventually will find a big market in Sweden, as well as all European countries; that is, the light cars, as they are far more economical. Cars of the E-M-F type are sure to find big sales in the near future there. But much missionary work will have to be done. The conditions over there are similar to those here ten years ago. An unfounded superstition in many parts that the motor car is closely allied with his satanic majesty must be dispelled."

the company. The other officers chosen are: Secretary and treasurer, E. A. Schnitker; directors, Charles Hoult, F. K. Thayer, E. A. Schnitker, W. T. Scott, Purl Scott, E. A. Staley and J. N. Wasson.

**Must Not Use Cut-outs**—Testers of motor cars and cycles will in the future be required to keep off the streets of the city of Milwaukee, unless they are equipped with regulation mufflers attached to the exhaust manifold pipe. This is the result of a new ordinance which became effective late last fall requiring every motor vehicle to be equipped with a silencer or muffler, which is not to be cut out on any street or roadway within

the city limits. There are a large number of motor car and cycle manufacturers in Milwaukee who have found its heavy traffic conditions are an excellent means of determining flexibility. The chief of police has ordered that no exceptions be made to the rules stated in the ordinance, however.

**Gets Option on Site**—It is reported that the Krupp Motor Works, a newcomer, has obtained an option on a site near Ambbridge, Pa., on which to erect a plant that will cost \$75,000. At the present time the concern is building motors in Cleveland, but it is planning on taking up the manufacture of cars.



ALCO TRUCK THAT MADE NON-MOTOR STOP SERVICE RECORD



# Brief Business Announcements

**MILWAUKEE, Wis.**—Hustis Brothers handle the King in Wisconsin.

**New Orleans, La.**—A Michelin tire branch has been opened at 821 Bayonne street, with W. A. Evans in charge.

**Pontiac, Mich.**—The Oakland Motor Car Co. announces the appointment of Thomas W. Wilson as works manager of the Oakland plant.

**Columbus, O.**—The Franklin Cycle and Supply Co., 142 East Gay street, has taken the central Ohio agency for the Gramm motor truck.

**Indianapolis, Ind.**—An agency for the Apperson has been opened at 427 North Meridian street, by Herbert Lytle, formerly prominent in racing circles.

**Springfield, Ore.**—The Springfield Auto-truck Co. has completed plans for the erection of a plant for the manufacture of commercial trucks. Welby Stevens is president.

**Sacramento, Cal.**—L. D. Lauppe has been appointed Sacramento county agent for Speedwell pleasure cars and trucks. Lauppe is erecting one of the handsomest motor car buildings in Sacramento.

**Columbus, O.**—The Pharis Brothers Rubber Co. is the name of a new concern which succeeds the Columbus-Mansfield Rubber Co. The Pharis company will be located in a new store room at 121 East Gay street. The company is agent for the Pharis, Monarch and Acme tires.

**Yonkers, N. Y.**—While Lowe's Garage, Inc., has sold its Riverdale avenue garage, it still is in business and has completed arrangements for the construction of a large office and salesroom alongside its Broadway garage. It handles the White, Oldsmobile, Overland, Mitchell, Haynes and Maxwell.

**Kokomo, Ind.**—L. D. Thorp, of Somo-nauk, Ill., has taken on the Apperson line for De Kalb county, Illinois, and the five northern townships in La Salle county, including the town of Mendota. His headquarters will be at Somonauk. The Central garage, with headquarters at Aurora, Ill., has secured the sales rights for the Apperson line for Dupage and King counties, Illinois.

**Springfield, Ill.**—The Springfield Auto Sales Co. has organized as successor to the Boulevard Co. and the Springfield Garage Co., with temporary headquarters at 106-108 East Washington street. The officers of the new company are: Basil W. Ogg, president; Leander S. Winegar, vice-president; Frank T. Keisacker, secretary and treasurer, and Roscoe A. Trumbull, mechanical superintendent. The new company starts out with a capital of \$50,000 paid in, and will handle three or four lines

of cars locally, acting also as territory distributor for the Michigan line.

**Roseburg, Ore.**—E. J. Neil, has taken the agency for the Michigan in Roseburg.

**Spokane, Wash.**—B. G. Davidson, of the Consolidated Auto Co., has secured the agency for the Stearns car in that city.

**Chicago**—The Velie Chicago branch have closed agencies with the J. F. Charley Auto Co., Evansville, Ind., and the Moran Auto Sales Co., of Grand Rapids, Mich.

**Tacoma, Wash.**—The latest make to be added to Tacoma's row is the Michigan. It will be handled by the Electric garage, 218-220 St. Helens avenue. W. A. Shumaker is manager.

**New York**—S. J. Wise & Co. announce the opening of a new salesroom at the corner of Boylston and Fairfield streets, Boston, for the sale of Amplex throughout the eastern part of the United States.

**New York**—E. A. Hall, formerly of the firm of Hall & Thomas, Vancouver, B. C., has formed a company under the name of the Hall Motor Supplies Co., 141 King street, East, Toronto, Ont., Canada, to represent the line of goods manufactured and controlled by the Emil Grossman Co., of New York and Detroit.

**Fowler, Ind.**—Dr. Mavity, for the past 4 years interested in the Mavity-Sleeper Auto Co., of this city, has retired from the firm to resume active professional work. The firm will be known from now on as the Sleeper Co., and will continue to handle Buick, Studebaker, E-M-F and Flanders cars in Benton and adjoining counties.

**San Francisco, Cal.**—Two well-known San Francisco tire men are soon to leave for Manila to assume responsible positions in that far away American city. A. S. Rhoades, specifications manager of the Diamond Rubber Co.'s plant in this city, and L. G. Lehoussie, city salesman for the same company, will become, respectively, general manager and taxicab department manager of the Bachrach Garage and Livery Co.

**San Francisco, Cal.**—The Disco Pacific Co. has opened branches at the following cities on the Pacific coast: 316 California building, Los Angeles, Cal., with George O. Seeley, president of the company, as manager of that branch, Mr. Seeley having charge of the ten southern counties in the state; 603 Van Ness avenue, San Francisco, N. E. Canfield, manager, having charge of the forty-eight northern counties in the state; 604-6 East Pike street, Seattle, Wash., H. G. Seeley, manager, having charge of Oregon and Washington territory. The Disco Pacific Co. is sole distributor and has the exclusive

agency on the Pacific coast for the Disco self-starter.

**Jacksonville, Fla.**—The Merrill-Stevens Co. will handle the Cartercar in this territory.

**Dayton, O.**—Clarence W. Lindsey, of the Lindsey Avenue Sales Co., has opened a new salesroom at 335 East Third street.

**Ft. Wayne, Ind.**—The Phillips Motor Co., which recently came here from Lima, O., has established an agency for the Studebaker line.

**Burns, Ore.**—James J. Lampshire has closed an agency contract for Harney county with the Everitt Northwest Co. He is proprietor of the Lampshire garage.

**Indianapolis, Ind.**—E. F. Harris, formerly assistant sales manager for the Motor Car Mfg. Co., Indianapolis, has taken a position with the sales department of the Henderson Motor Sales Co., of this city.

**Boston, Mass.**—Frank Mitchell, of Waterville, Me., has closed for the Velie agency in Waterville. Tucker & Palmer, of Tarrifville, Conn., have closed for the Velie agency in their locality, acting as a sub-agent for the J. T. Curtiss & Co., of Simsbury, Conn.

**Cedar Rapids, Ia.**—The Barton-Ford Motor Car Co. will open a garage here February 1. L. M. Barton has sold his interest and resigned as treasurer of the Iowa Auto and Tire Co., of Davenport, and manager of the Cedar Rapids branch, effective February 1.

**Austin, Tex.**—The Capital City Auto Co. has dissolved and there has been a reincorporation under the same name with a capital stock of \$35,000, by Pierre Bremond, W. M. Graham and R. M. Thompson, Jr. The old company did a taxicab business, while the new concern plans to do a general mercantile business.

**New York**—The Delameter-Byrnes Automobile Co. has secured the New York territory for the Otto, now made by the Otto-mobile Co., which has been incorporated under the laws of New Jersey for \$500,000 and which has established its factory at Mt. Holly, N. J. The Brooklyn agency has been taken by L. F. Hewlett, 1270 Bedford avenue.

**New York**—The Emil Grossman Co. announces the following changes in its staff of salesmen: C. P. Townsend, who formerly was western manager of the company and who went with the Westchester Appliance Co. about a year ago, has again taken charge of that territory. C. A. Mat-tison, formerly in charge of the New England territory, and who was recently with the Jacobson-Brandow Co., of Pittsfield, Mass., has again taken charge of the New



England states. L. G. Hartdorn will cover the states of Michigan and Indiana.

**Philadelphia, Pa.**—C. B. Shaw has taken the Marathon agency and is located at 2037 Market street.

**Cleveland, O.**—The R. C. Hull Electric Co., 1820 Euclid avenue, has been appointed representative of the Remy Electric Co.

**Lima, O.**—The Blevins Motor Sales Co., of Toledo, distributor for the E-M-F and Flanders in northwestern Ohio, has established an office in Lima at 112-114 North Elizabeth street, handling the southern half of the territory.

**Boston, Mass.**—Arthur G. Beharrell has closed with the Velie Boston branch for the fourth year for the sale of Velie cars in Lowell. The following have closed for Velie agencies in Connecticut: R. J. Flynn, Hartford, Conn.; J. A. Alderman, Suffield, Conn.; Tucker & Palmer, Tarrifville, Conn.; Homer H. Judd, Bristol, Conn. Walter B. Johnson, of Essex Junction, Vt., has closed for the representation

of the Velie for a second year in northern Vermont.

**Cincinnati, O.**—The Model Garage Co., of East Ninth street, has taken the agency for the Nyberg car.

**Seattle, Wash.**—Archer Brothers have taken the agency for the Marathon cars in Seattle. Harry McKnight has taken the position of sales manager.

**Los Angeles, Cal.**—The Crow-Elkhart and Great Western are again represented in Los Angeles, the agencies being established in the sales rooms of the Pacific Motor Car and Aviation Co.

**Portland, Ore.**—Three Portland firms will be housed in brand new quarters in a short time. The building at Nineteenth and Washington streets is being put up for the C. L. Boss Co., and the Northwest Auto Co., which handle the Reo, Stearns, Premier and Apperson. A two-story concrete building with a completely furnished garage, is being built for the Becker Auto Co., which has the Oregon agency for the Lozier. The Portland Motor Car Co. also

will have a new home in which to house the Winton six.

**St. Louis, Mo.**—C. T. Schaefer has resigned as chief engineer of the Mogul Motor Truck Co.

**Moline, Ill.**—E. H. Sohner has accepted the position of superintendent with the Velie Motor Vehicle Co. and will have charge of general construction.

**Lewiston, Ida.**—Carsow & Herrin have secured the agency for the Everitt cars in central Idaho. The new concern will be called the Lewiston Auto Co.

**Denver, Colo.**—Nelson S. Gotshall, of the Krebs-Gotshall Co. agent for the Lozier and Detroit electric, has become western representative of the Lozier Motor Co. The firm name remains unchanged for the present.

**Portland, Ore.**—The Nob Hill garage has taken the agency for the Alco line of trucks and pleasure cars. W. T. Sleddon, who has until recently been in the motor car business at Hood River, Ore., will handle the Alco line for the Portland agent.

**Leavenworth, Kan.**—Hesse Motor Car Co., capital stock, \$5,000; incorporators, O. A. Hesse, W. C. Kern, R. B. Whitaker, L. J. Kern and A. L. Rhul.

**Sibley, Mich.**—Churchfield Motor Co., capital stock, \$150,000.

**Dallas, Tex.**—Henderson-Cole Motor Co., capital stock, \$10,000; incorporators, W. F. Bridwell, F. T. Bridwell and C. F. Hurst.

**New York**—De Lamater-Byrnes Automobile Co., capital stock, \$30,000; to manufacture motor vehicles; incorporators, J. W. DeLamater, M. B. Byrnes and W. A. Shepard.

**New York**—Amerital Mfg. Co., capital stock, \$200,000; to manufacture accessories; incorporators, W. O. Turrell, S. Seognamillo and L. W. Schwarz.

**Camden, N. J.**—Vixen Tool Appointment Co., capital stock, \$20,000; to deal in iron, steel, manganese, etc.; incorporators, F. R. Hansell, George H. B. Martin and John A. MacPeak.

**Lynchburg, Va.**—Taylor Motor Co., capital stock, \$25,000; incorporators, T. A. Jennings, R. C. Taylor and H. P. Taylor.

**Richmond, Va.**—Oakland Auto Co., capital stock, \$15,000; incorporators, R. H. Bruce, S. V. Gregory and G. T. Sharp.

**Grand Rapids, Mich.**—Panwood Mfg. Co., capital stock, \$60,000; deal in accessories; incorporators, F. Z. Pantland, H. B. Woodcock and R. G. Woodcock.

**Siegfried, Pa.**—Siegfried Mototr Co., capital stock, \$10,000; incorporators, C. A. Porter, John J. Kocher, John Warta and B. R. Debbie.

**Grand Rapids, Mich.**—Auto Axle Co., capital stock, \$24,000; to manufacture accessories; incorporators, Palmer A. Jones, A. Walthers and Louis M. Jones.

**Pittsburg, Pa.**—Murray Mfg. Co., to manufacture motor cars; incorporators, J. E. Murray, F. P. Murray, Thomas Murray, John L. Howler and W. D. McBryar.

**Chicago**—Langsman Teaming Co., capital stock, \$10,000; general storage and teaming business; incorporators, Charles Langsman, John Stewart and S. M. Meek.

**Tacoma, Wash.**—Alaska Hydraulic Motor Co., capital stock, \$100,000; incorporators, T. F. Palms, D. T. Peck and others.

**Glasgow, Ky.**—Devney Automobile Machine Co., capital stock, \$50,000; incorporators, R. S. Devney, W. H. Jones, J. S. Cable and J. R. White.

**Atlanta, Ga.**—Interstate Automobile Tire and Rubber Co., capital stock, \$500,000; incorporators, R. H. Falbaum, M. A. Gentry, L. R. Strauss and L. H. Falhaum.

**New York**—Berg Auto Trunk and Specialty Co., capital stock, \$30,000; leather specialties; incorporators, J. Berg, J. Baehr and J. T. Booth.

**Hartford, Conn.**—Connecticut Commercial Car Co., capital stock, \$50,000; to manufacture trucks; incorporators, J. J. Rafter, G. L. Kallberg and J. B. Henry.

**Cleveland, O.**—Goby Engine Co., capital stock, \$100,000; to manufacture engines and parts; incorporators, C. Grl, P. A. Connally, W. K. Clymer, M. J. Mosko and Ernest Feazel.

## Recent Incorporations

**Buffalo, N. Y.**—Buffalo Auto Novelty Co., capital stock, \$500; incorporators, George A. Orr, Donald S. Carroll and Henry L. Jauch.

**Camden, N. J.**—Bergdoll Sales Co., capital stock, \$10,000; general motor car business; incorporators, F. R. Hensell, John A. MacPeak and C. U. Martin.

**Rome, Ga.**—Automobile Supply Co., incorporators, Louis M. Wright and Jesse Gardner.

**New York**—Mohawk Garage, Inc., capital stock, \$50,000; incorporators, B. J. Roesler, Jr., A. M. Roesler and W. Roesler.

**Wilmington, Del.**—Dahl Punctureless Tire Co., capital stock, \$50,000; to manufacture and deal in tires.

**Morgantown, W. Va.**—Maxim Tri Car Mfg. Co., capital stock, \$50,000; to manufacture motor cars; incorporators, Harry R. Warfield, J. K. Buchanan, John Streater, H. B. Long and A. A. Hall.

**Cleveland, O.**—Acme Auto Co., capital stock \$10,000; incorporators, W. C. Pollack, John D. Meyer, M. E. Pollack, S. K. Meyer and Elmer Edgerton.

**Cleveland, O.**—Crawford-Hough Garage Co., capital stock, \$10,000; incorporators, Richard H. Lee, G. R. Collar, G. M. Gallagher, George E. Bradbury and Henry R. Gall.

**New York**—Berg Auto Trunk and Specialty Co., capital stock, \$30,000; motor car leather specialties; incorporators, J. Berg, J. Baehr and J. T. Booth.

**Cleveland, O.**—City Auto Livery Co., capital stock, \$5,000; general livery and garage business; incorporators, George B. Harris, E. E. Rodd, E. A. Close, S. M. Davis and F. J. Killian.

**Cleveland, O.**—Motor Supply and Tire Co., capital stock, \$1,000; deal in tires and supplies; incorporators, Earl G. Gargett, Robert C. Gargett, Robert Holbrook, Dan Pfahl and R. J. Bissett.

**Cleveland, O.**—Maranville Lubricating Co., capital stock, \$10,000; to manufacture machinery for purifying oils; incorporators, Christian Grl, P. A. Connally, W. R. Clymer, M. J. Mosko and C. A. Feazel.

**Mason, O.**—John Kohl Carriage and Automobile Co., capital stock, \$10,000; to manufacture carriages and motor cars; incorporators, John Kohl, George Kohl, A. H. Bennett, G. A. Moon and Frank Ward.

**Cincinnati, O.**—D. M. Cooper Co., capital stock, \$10,000; to manufacture engines and motor car accessories; incorporators, H. L. Hagerman, Charles E. Dornette, W. H. Mitchell, W. E. Kampfmüller and G. A. Dornette.

**Chicago**—B. & L. Caster Axle Co., capital stock, \$250,000; manufacture and deal in motor cars and parts; incorporators, A. S. Burdell, F. E. Lyon, B. J. Crisup.

**Cleveland, O.**—Co-Operative Garage Co., capital stock, \$4,000; general livery and garage business; incorporators, M. L. Samp-liner, W. St. Clair, R. E. Jarman, A. F. Sulbach and L. H. Mertens.

**Dayton, O.**—Imperial Auto Sales Co., capital stock, \$10,000; to conduct sales agency; incorporators, R. W. Myers, W. W. White, A. J. Florini, R. F. Myers and T. E. Kerstetter.

**Cleveland, O.**—Winton Gas Engine and Mfg. Co., capital stock, \$200,000; to manufacture gasoline engines; incorporators, A. Winton, J. Winton, W. S. McKinstry, L. Winton and S. Parks.

**Chicago**—Harvey Coal and Lumber Co., capital stock, \$50,000; teaming; incorporators, T. A. Peterson, A. G. Foster, Susan K. Peterson and A. R. Foster.

**Pittsburg, Pa.**—Universal Motor Car Co., capital stock, \$10,000; incorporators, J. W. Kennedy, H. A. Cornelius and Henry Weiskopf.

**New York**—Prospect Stable and Garage Co., capital stock, \$10,000; incorporators, D. P. Healey, Jr., D. P. Healey and M. Healey.

**Fort Worth, Tex.**—Capitol City Auto Co., capital stock, \$35,000; to deal in motor cars; incorporators, Poerre Bramond, W. M. Graham, H. J. Grinnan and R. M. Thompson, Jr.

**Lynchburg, Va.**—Taylor Motor Car Co., capital stock, \$25,000; incorporators, T. A. Jennings, R. C. Taylor and H. P. Taylor.

**Lewiston, Me.**—Bath Garage Co., capital stock, \$10,000; to deal in motor cars; incorporators, Charles W. Clifford, Jr.

**Boston, Mass.**—Connecticut Commercial Car Co., capital stock, \$50,000; to manufacture trucks; incorporators, J. J. Rafter, G. L. Kallberg and J. B. Henry.

**Chicago**—Pope Hartford Co., capital stock, \$20,000; to manufacture and deal in motor cars; incorporators, J. L. Russell, J. Shields and E. K. Jones.

**Cincinnati, O.**—Bergner Cade Auto Co., capital stock, \$6,000; to deal in motor cars; incorporators, D. S. Cade, J. W. Burgner and O. E. Cade.

**Elizabeth, N. J.**—Allan B. Laing Co., capital stock, \$20,000; to manufacture and deal in motors; incorporators, A. B. Laing, I. M. Laing, G. F. Graves, A. V. Searling and E. M. Laing.

**Louisville, Ky.**—Puncture Proof Co., capital stock, \$350,000; to manufacture tires; incorporators, W. M. Sale, H. Spalding and H. B. Fitch.

**Philadelphia, Pa.**—Roman Automobile Co., capital stock, \$5,100.

**Richmond, Va.**—Oakland Auto Co., Inc., capital stock \$15,000; general motor car business; president, R. H. Bruce.

**Lexington, Ky.**—Fayette Motor Co., capital stock \$10,000; incorporators, C. B. Mathias, Morgan Smedley and W. P. Price.

**Dover, Del.**—Randolph Motor Truck Co., capital stock \$200,000; incorporators, H. O. Laughlan, W. W. Bender and J. M. Satterfield.

**Atlanta, Ga.**—Interstate Automatic Tire and Rubber Co., capital stock \$500,000; to deal in tubes and automatic tires.



# The Motor Car Repair Shop

ALTHOUGH the greater majority of motor car repair shops throughout the country are provided with some sort of a stand on which to rest the motor during the time it is being overhauled, there is an appreciable lack of a similar article of equipment on which to rest the rear axle mechanism during an overhauling, the practice being to lay it on the floor or perhaps on a couple of horses which are none too secure, and neither of which bring the axle to a height that will enable the workmen to perform their operations upon it advantageously. When a man has to work in a stooped-over or kneeling position for a few hours, he begins to get a kink in his back and perhaps cramps in his legs, that not only are tiresome to him but which, as a result, tend to make him shirk the work in a manner that is neither beneficial to the owner of a car or to the reputation of the manufacturer, dealer, or repairman. On the other hand, by providing a stand which will enable the workmen to perform their operations without physical inconvenience, a better class of workmanship is encouraged. The workmen will do better work and will do it in a shorter time than would be possible under the physical discomfort which exists when they are required to kneel on the floor or bend over the mechanism that is supported on a few low unsteady horses. The stand shown in Fig. 1 is a most convenient and rather inexpensive structure, and a very worthy article of repair shop equipment. Another article which the workman finds very useful, also is shown in this illustration. It consists simply of a portable tool box with leather straps looped around the sides in an old-fashioned manner, that permits of tools being

held in respective places where they may be readily found.

## The Peerless Machine Shop

From the number of inquiries that pour into the Motor Age from various parts of the country, the repair shop machine tool equipment and arrangement, seems to be a subject in which the garage owner and motor car dealer are deeply interested at

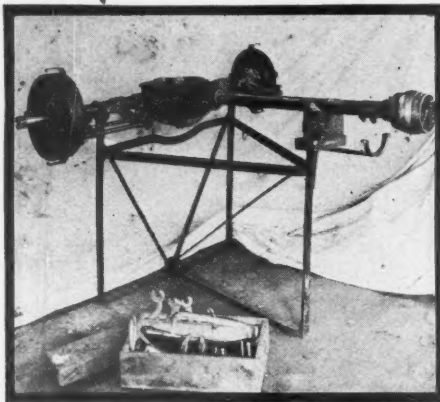


FIG. 1—MAXWELL REAR-AXLE STAND

the present time. Many good pointers are to be gained in this respect from an investigation into the methods of arrangement and equipment employed in the new service buildings recently erected by old dealers in motor cars, and from the dealers who in laying out the equipment of their new shops have profited by the inconveniences experienced in their old ones. One of the most up-to-date shops in the city of Chicago is that of the Peerless agency. A section of the machine toolroom of the repair department in this agency is shown in Fig. 2. This shop is comparatively small, but by means

of a clever arrangement of the equipment the department has a roomy appearance, and all of the machine tools are conveniently accessible. As shown in the illustration, there are two lathes, a small high-speed one at A, a larger engine lathe at B, and against the wall at C is a cabinet for various small machine tools and extra parts. In the next row behind the lathes, far back in the background, is a large drill press D, in the same row and toward the front is a shaper E, and foremost in this row is a milling machine F. Still farther back against the wall may be seen the reservoir G of the compressed air system. At the right in the illustration is shown the work bench, with a little electric motor-driven emery grinder H on the near end of the bench, and a vise on the opposite end. A heavy wire screen extending from the floor to the ceiling separates this department from the main portion of the repair shop. The bench rests against this screen, thus occupying a position in which the workmen are favored with the best light. The neat appearance of this department was not created for the purpose of taking a photograph, but is characteristic of all the departments of the agency, a feature worthy of being duplicated by all motor car agencies as it has a beneficial psychological effect on both the workmen in the shop and the motor car owners who patronize it. It also serves to inspire prospective buyers with confidence in the service obtainable after they have purchased a car. Service now is becoming the *si* and also one of the strongest selling arguments, of the best motor car manufacturer. The prospect is beginning to look into the service situation.

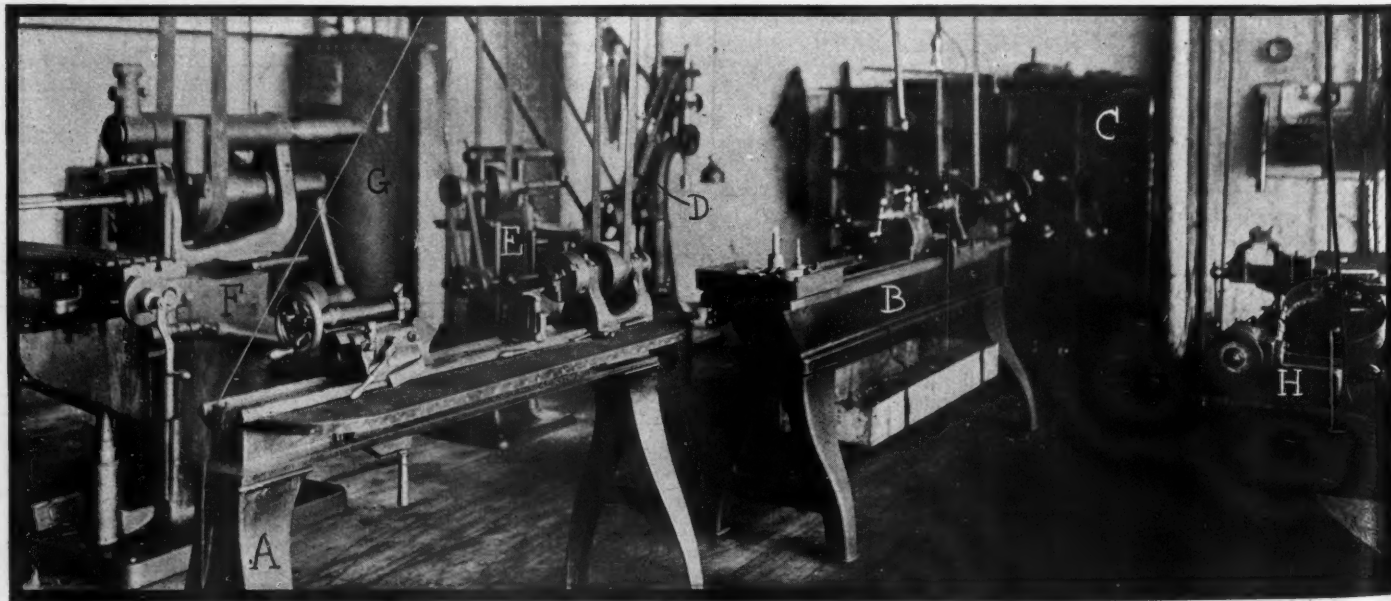


FIG. 2—SHOWING MACHINE TOOL EQUIPMENT OF PEERLESS REPAIRSHOP, CHICAGO